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To:
The Government and the Finance Committee of the Knesset
Jerusalem

I am honored to hereby present the Bank of Israel Annual Report for 2020, pursuant to Section 54 of the Bank of Israel Law, 5770–2010.

The COVID-19 pandemic that upended the world in 2020 also had a major impact on Israel. Apart from the widespread morbidity and mortality, it had an impact on both economic activity and various aspects of society and welfare. The government imposed severe restrictions on activity, which peaked during three lockdowns, and which were intended to moderate the rate of infection. These restrictions were focused on creating physical distancing, and their impact was therefore focused primarily on industries and activity that involve physical proximity. The harm to the rest of the economy was limited. The fluctuations in the severity of the restrictions were also manifest in volatility in the level of economic activity over the course of the year, particularly the sharp drop during the first lockdown.

Israel was in a healthy economic situation in many respects when the pandemic began. Nevertheless, the pandemic had major consequences for the economy, with GDP falling by 2.5 percent. The decline in GDP was led by an exceptionally large drop of 9.5 percent in private consumption, which was also manifest in a sharp increase in the savings rate. In contrast, exports played an important role in moderating the damage to the economy, primarily thanks to the sustained and rapid growth in the export of high-tech services. The positive performance in exports alongside the sharp drop in imports led to a significant expansion of the current account surplus. The inflation rate this year was -0.7 percent, which is significantly less than in previous years. The crisis's effect on domestic economic activity and on global prices of fuel and food contributed to the decline in inflation, as did the appreciation of the shekel.

The effect on employment was even larger than the effect on GDP. Many workers were furloughed and the broad unemployment rate shot up to an average of 15.7 percent over the course of the year. The effect on the employment of low-wage earners was particularly severe since a large number of them are employed in industries that suffered the largest decline in economic activity. The situation in these industries also had a widespread effect on the self-employed and on small businesses. Small businesses found it hard to obtain credit, particularly prior to the activation of the State-guaranteed funds.

Fiscal policy responded vigorously, primarily by means of transfer payments that were meant to assist households and businesses. Among other measures, these

included generous assistance to the unemployed and grants to the self-employed and businesses. The government also provided guarantees for the provision of loans to businesses, particularly small businesses that were severely affected by the crisis, and it took additional steps to support businesses, including a discount on municipal taxes and early tax rebates. The increase in transfer payments was the main factor in the growth of the government deficit to 11.6 percent and the increase in the debt-to-GDP ratio from 60 percent to 72.6 percent. In the absence of an approved State budget, policy was implemented as part of a continuation budget. The approval of the one-time budget increases (“COVID-19 exceptional budget allocations”) allowed the government to significantly increase its expenditures in order to mitigate the crisis.

Monetary policy also responded vigorously. The Bank of Israel interest rate was lowered by 0.15 percentage points to 0.1 percent. Monetary policy at first focused on stabilizing the financial markets, and later employed a variety of tools to ease financing terms. The most prominent of these in terms of scope was the purchase of government bonds in the secondary market. The Bank of Israel used other tools as well, some of them for the first time in Israel, such as the purchase of corporate bonds and loans to the banks at particularly low interest rates conditional on the channeling of credit to small businesses. Later on, the Bank of Israel also announced that it would provide these loans at a negative interest rate (-0.1 percent) and set a ceiling on the interest that the banks could collect from businesses in this context. In addition, the Bank of Israel purchased foreign currency in large quantities in order to moderate the appreciation of the shekel and its adverse effect on economic activity.

Alongside the steps employing monetary tools, the Bank of Israel worked to increase the quantity of bank credit by easing the regulation of the banks. Similarly, and as part of the programs for deferring loan payments initiated by the Bank of Israel, payments were deferred on a significant scale, primarily those on housing loans, but also on credit to small and micro businesses.

At the end of 2020, Israel initiated a large-scale vaccination program. Its effect on morbidity was already noticeable during the first quarter of 2021, which is beyond the period analyzed in this report, in view of which the government significantly eased the restrictions on activity.

As Israel emerges from the crisis, fiscal policy will need to be adjusted in order to ensure that the public debt to GDP ratio is on a downward path. The contraction of the special expenditures having to do with the crisis will not suffice. The large and expanding structural deficit prior to the crisis shows that additional adjustments will be necessary. Moreover, there must be a return to conducting fiscal policy within formalized frameworks and in accordance with long-term fiscal rules in order to maintain its credibility over time and support the processes of setting priorities. Passing the 2021 budget is an essential step in this direction.

It is important to prepare to deal with the potential long-term implications of the crisis, such as persistent unemployment, structural changes in the economy, and the cumulative effect on the scholastic achievements of some pupils. Furthermore, once the crisis is over, it will again become necessary to focus on the fundamental problems of the economy, chiefly low productivity, disparities in productivity between segments of the population and sectors of the economy, and inequality. Some of these problems were exacerbated during the crisis, such as those due to the differential effect on more highly educated workers and those with lower education and wage levels, and in view of the importance of education and skills for online activity. These all underscore the importance of improving the education system and reducing educational gaps. Increasing investment in the economy, particularly in public transit, communication and energy infrastructure, is also necessary in order to increase productivity in Israel. In addition, and as a lesson from the crisis, it is important to upgrade the information infrastructure used to formulate and implement government policy. The crisis has emphasized the possibilities for the assimilation of advanced technologies in order to improve government activity and service to the citizen, and it is worthwhile broadening these processes.

Prof. Amir Yaron

A handwritten signature in blue ink, appearing to read "A. Yaron".

Governor of the Bank of Israel

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Chapter 1

The Economy in the Shadow of COVID-19

- The COVID-19 pandemic shook up the entire world, including Israel. Beyond the serious morbidity and mortality rates that it caused, the measures taken by governments to restrain the pandemic and behavioral changes by individuals led to a massive impact to the economy, well-being, and all ways of life.
- In Israel, the government imposed serious restrictions on activity, which peaked during three lockdowns. These restrictions focused on creating physical distance, so their impact was concentrated in industries and activity that involve physical proximity. The impact to rest of the economy was limited. The fluctuations in the strictness of the restrictions were reflected in sharp fluctuations in the level of economic activity over the course of the year, particularly during the first lockdown.
- GDP in Israel declined by 2.5 percent in 2020. The impact was led by an anomalous decline of 9.5 percent in private consumption. The intensity of this decline first and foremost reflects the impact of social distancing restrictions, and was also reflected in a steep increase in the savings rate.
- The impact to employment was much sharper than the impact to GDP. Many employees were furloughed, and broad unemployment jumped to an average of 15.7 percent over the course of the year. The impact to employment of low-wage earners was particularly harsh because many such workers are employed in the industries that absorbed most of the impact to activity. The impact in such industries also led to a broad impact to the self-employed and small businesses. These businesses found it difficult to raise credit particularly before the activation of the state-backed funds.
- Exports played an important role in moderating the impact of the crisis in the economy, mainly thanks to the continued rapid growth of advanced services exports. Export performance, alongside the sharp decline in imports, led to a significant expansion of the current account surplus.
- Fiscal policy responded vigorously, mainly through transfer payments intended to assist households and businesses. This policy increased private disposable income and mitigated the decline in GDP. The government also provided guarantees for the provision of loans to businesses. The budgetary deficit reached 11.6 percent, and the public debt to GDP ratio climbed from 60 percent to 72.6 percent.
- Monetary policy also reacted strongly. At the beginning of the crisis, it focused on stabilizing the financial markets. Later, it used a variety of tools to ease financing terms. The most prominent of these in terms of volume was the purchase of government bonds in the secondary market. The Bank of Israel also used additional tools, including the purchase of corporate bonds, and monetary loans to assist small businesses. In addition, the Bank of Israel lowered the interest rate by 0.15 percentage points to 0.1 percent, and purchased a significant volume of foreign exchange.
- The inflation rate in 2020 was -0.7 percent, significantly lower than in recent years. The impact of the crisis on domestic economic activity and on global fuel and food prices, as well as the appreciation of the shekel, were contributory factors to the decline in inflation. Rent prices increased by only a moderate amount during the year.
- The marked variance across segments of the economy and of society, both in terms of the extent of the economic impact, and in terms of the impact to other aspects of well-being, was due to the nature of the crisis. However, it highlighted the weaknesses of the socioeconomic safety net, as well as existing gaps between segments of the economy and society.
- Passing the state budget for 2021 is essential in order to determine priorities and implement programs to accelerate growth, particularly in the areas of human capital and investment in public transit, communications, energy and environmental quality infrastructure.

1. THE GENERAL PICTURE

The COVID-19 crisis that gripped the world in 2020 was unique in its intensity, its characteristics, and its multi-dimensional ramifications. The fundamental cause of the crisis, as well as the key to its conclusion, is not economic. Beyond the serious morbidity and mortality that it is causing, the crisis has had a serious impact not only on economic activity, but also on many levels of society and well-being. The impact to economic activity and well-being was due to both the measures taken by governments to restrain the spread of the pandemic and voluntary behavioral changes by the public in view of concern of contagion.

The challenges that the crisis posed for policy makers around the world also set it apart from other crises. Policy makers worked through two channels in parallel: health—restrictions on activity intended to reduce serious morbidity and mortality; and economic—a broad fiscal and monetary response that aimed to reduce the economic impact. Both channels were intended to ease the impact and to gain time until the fundamental solution to the crisis could be found. As opposed to other crises, they were not intended to advance a solution, which had to come in the form of finding a vaccine or a cure.

A main component of the policy to restrain the pandemic in many countries has been the imposition of restrictions on the public in order to create physical distancing. These restrictions peaked with the imposition of full or partial lockdowns that paralyzed a significant share of activity and greatly restricted the public's freedom of movement. Their impact on economic activity and well-being was a focus of deep disagreement around the world regarding this policy and the appropriate balance between saving lives and the attendant harm to the economy and well-being. The dispute also related to the distribution of the burden of the impact of the restrictions among various groups in society. The increased physical distancing, whether due to the restrictions or to voluntary behavior, is what dictated the nature of the impact to economic activity and well-being, particularly its differential nature.

When the crisis hit, Israel was in a good economic state in many respects. Even so, the impact to the economy was very serious. GDP declined by 2.5 percent, and private consumption declined by 9.5 percent. Broad unemployment¹ jumped to 15.7 percent, and the gap between the impact to GDP and the more serious impact to employment was prominent. The intensity of the impact to GDP was more moderate than the concerns that were prevalent during some stages of the crisis. This was partly due to the response of fiscal and monetary policy, and because the impact was focused on the domestic services industries that were directly affected by the government restrictions and changes in public behavior, and which generally have relatively low productivity. The waves of infection that characterized the pandemic were also

GDP declined by 2.5 percent in 2020, and private consumption declined by 9.5 percent. Broad unemployment jumped to 15.7 percent.

¹ This definition includes the unemployed (under the normal definition), temporary absentees for reasons having to do with COVID-19 (mainly furloughed employees), and those who are not participating in the labor force due to COVID-19. This definition relates only to 2020 data. The unemployment rate in previous years relates only to the unemployed, as normal.

reflected in fluctuations in the strictness of the restrictions, which peaked during three lockdowns, and also in the sharp fluctuations in the level of economic activity during the year, particularly during the first lockdown.

Fiscal and monetary policy responded vigorously, and focused on helping households and businesses get through the crisis, both directly and by easing financing terms. Fiscal policy worked mainly through transfer payments and providing guarantees for loans. These payments were the main factor in increasing the public debt to GDP ratio from 60 percent to 72.6 percent. In addition, the budget of the health system was increased. Fiscal policy was conducted under a continuation budget, which is restraining by its nature, and utilized anomalous arrangements in order to enable the increase of expenditures to deal with the pandemic. Monetary policy focused first on stabilizing the financial markets, and later used a variety of tools to ease financing terms. The most prominent of these in terms of volume was the purchase of government bonds in the secondary market. The Bank of Israel also used tools focused on specific sectors, some for the first time in Israel, such as the purchase of corporate bonds and monetary loans to help small businesses. Toward the end of the year, the Bank even announced that it would provide such loans to the banks for this purpose at negative interest (-0.1 percent). In addition, the Bank of Israel purchased significant volumes of foreign exchange in order to moderate the appreciation of the shekel and its adverse effect on economic activity.

Fiscal and monetary policies responded vigorously, and focused on helping households and businesses get through the crisis.

Beyond the economic damage, the crisis had a serious impact on the well-being of individuals in a variety of areas. These included impacts to the freedom of movement; leisure activity; social contacts; and mental and emotional well-being. The crisis even led to declines in health that were not due to infection from the virus and that may also be reflected in increased future mortality (for instance due to avoidance of receiving treatment or early diagnosis of illnesses); worsening domestic violence; and harm to children due to the shutdown of the education system. Some of the aspects of the impact to well-being are detailed in Chapter 7 of this Report. These effects deepened the dispute regarding social distancing restrictions. There was also an added sectoral element to the disputes, which concerned the extent of compliance with and enforcement of the restrictions, and which gave rise to issues of social cohesion.

The crisis's impact on various segments of the economy and society was not uniform. This variance was reflected both in terms of the economy and in terms of other aspects of well-being.

The variance in the economic impact was, to a large extent, due to the nature of the industries that absorbed the brunt of the impact. These industries feature a large number of low-wage earners, and the impact to employment among these workers was therefore particularly sharp. The impact in these industries also led to a broad impact on small businesses and the self-employed. The impact to household income and employment was particularly serious in the middle deciles, and not in the lower deciles, both due to universal grants issued during the year, and due to the characteristics of the impact to employment.

The broad assistance programs implemented by the government made it easier for households and businesses. However, the crisis emphasized the importance of establishing an economic safety net that can be deployed rapidly when needed and that enables the rapid provision of assistance that is focused on those hit by the crisis.

The impact to noneconomic well-being was also not uniform. For instance, social distancing had a prominent effect on the social interactions of the elderly. Additional characteristics of low-income households, such as overcrowding and less availability of computers, contributed to an increased impact on their well-being. These characteristics increased their vulnerability, for instance by making it more difficult for parents to work from home or for children to learn online, or to deal with prolonged stays at home.

The crisis led to a jump in the use of online technologies for remote activity in a variety of areas, including work, study, supply of commercial and public services, shopping, and social connections. This reduced the impact of the crisis on the economy and well-being, and accelerated processes that had begun earlier such as the expansion of work from home, expanded the circle of users of such technologies, and provided a lot of experience in their use. However, the expansion of online activity emphasized the significant gaps—by income, education, industry, profession, age, and population sector—in people’s ability to participate in it and to enjoy its benefits (“digital divide”). Some of these gaps reflect skill gaps in working in a digital environment and gaps in the availability of equipment and infrastructure (such as computers and communications). The expansion of online activity may worsen existing socioeconomic differences and have implications for the necessary forward-looking policy.

The intensity of the crisis has made it necessary for policy makers to focus on its immediate handling, as part of which measures of an unusual scale were taken in order to assist businesses and households. Safety net considerations were naturally emphasized, even at the cost of potentially distorting incentives. When the economy begins to recover from the crisis, it will be important to adjust the scale and characteristics of the assistance programs so that they don’t have an adverse effect on incentives to accelerate activity, and in order to reduce their costs. At the aggregate level, it will be necessary for fiscal policy to lead to a downward path of public debt, and adjustment of the scale of the monetary tools used during the crisis will also be required. It is important to prepare for dealing both with the prolonged implications of the crisis, such as persistent unemployment, structural changes in the economy, and the cumulative adverse effect on the scholastic achievements of some pupils, and with the long-term fundamental problems in the economy, chiefly low productivity, disparities in productivity between segments of the population and sectors of the economy, and inequality, some of which were exacerbated by the crisis. Passing the state budget for 2021 instead of operating according to a continuation budget is an essential step for dealing with these challenges.

2. ECONOMIC DEVELOPMENTS

a. Real economic activity

The outbreak of the pandemic in Israel, the health measures taken by the government to deal with it, and the changes in public behavior, shook up the economy. GDP declined by 2.5 percent, per capita GDP declined by 4.2 percent, and broad unemployment skyrocketed to its highest level in at least 50 years.² Despite the intensity of the crisis, its impact was focused on certain industries and did not spread into a downward spiral of the entire economy. Despite the panic that took hold of the financial markets at its outset, the real crisis did not develop into a financial crisis, partly thanks to the monetary policy tools activated at that time.

Due to a number of factors, the aggregate impact to the economy was moderate relative to the intensity of the shock, and even relative to the situation in many other advanced economies (Figure 2.1 in Chapter 2). The economy was at a good starting point prior to the crisis, with prolonged growth, a high level of activity, a particularly low unemployment rate in a full employment environment, a prolonged current account surplus, and a very high level of foreign exchange reserves. The public debt to GDP ratio enabled fiscal policy to respond to an unprecedented extent. Monetary policy also reacted with tremendous strength. Economic policy thereby contributed to reducing the impact on the economy, although this contribution was not unique to Israel. Structural characteristics that worked to benefit the economy include the low weight of the tourism industry and the high weight of advanced services export industries, particularly the specialization in services for which global demand increased in view of the crisis. The economy also benefited from technological developments that enabled working from home on a large scale, particularly in those export industries, and from a decline in global oil prices, although those factors were not unique to Israel. In contrast, political instability made it difficult to cope.

Prior to the crisis, the economy was at a good starting point.

The response to the pandemic—as reflected first and foremost in the restrictions imposed by the government—is the basis for the clear separation created between industries that involve physical proximity and were seriously affected and those that were less affected or suffered no impact at all. This difference between industries was also reflected in the crisis's differential effect on uses in the economy, on employees at different wage levels, and on businesses by size. It also had an effect on the significant gap between the impact on GDP and that on employment.

The waves of morbidity and the changes in strictness of the restrictions imposed by the government—which peaked during the three lockdowns—were reflected in sharp fluctuations of activity during the year upon entering or exiting the lockdowns. (See

² As explained above, the broad definition, which includes two components in addition to the unemployed, relates only to 2020 data. The unemployment rate, which includes the unemployed and temporary absentees due to COVID-19 but does not include nonparticipants due to COVID-19, reached 14 percent in 2020, just slightly higher than the peak of 13.4 percent that the regular unemployment rate (only the unemployed) reached in 2003.

Figure 1 in Box 1.1, and greater detail in Chapter 2.) The first lockdown's immediate impact on activity (estimated at a decline of 20 percent in the level of activity) was the strongest, while the later lockdowns had less of an impact (even though the second lockdown was formally stricter than the first), as parts of the economy acclimated to activity under restrictions through working from home, provision of online services, expanded use of deliveries, and more. The extent of compliance with the closures may also have declined. A third lockdown began at the end of the year, on a more lenient footing that became stricter only at the beginning of 2021.

The decline in private consumption was particularly steep, even compared with other countries.

The unusual intensity of the impact to private consumption, which declined by 9.5 percent, meaning a decline of about 11 percent in per capita consumption, is one of the unique characteristics of the current crisis.³ Private consumption is generally less sensitive to business cycles than other uses, and thereby serves to restrain fluctuations in GDP, while this time it was the focus of the shock. This was due to the fact that it was not an impact to income—private disposable income actually increased in 2020—but restrictions imposed on activity that led the decline in private consumption. The sharp decline in private consumption in Israel compared with other countries is consistent with the severity of the restrictions imposed here compared with those countries (Figure 1.1). It was even more prominent considering that the impact to GDP in Israel was less than the OECD average. However, the figure shows that the severity of the restrictions may explain only a small part of the differences among the OECD countries in the intensity of the decline in private consumption. Voluntary changes in individuals' behavior in view of their concerns over infection also contributed to the decline in private consumption around the world.⁴ It is reasonable to assume that these changes had some effect on consumption in Israel as well.⁵

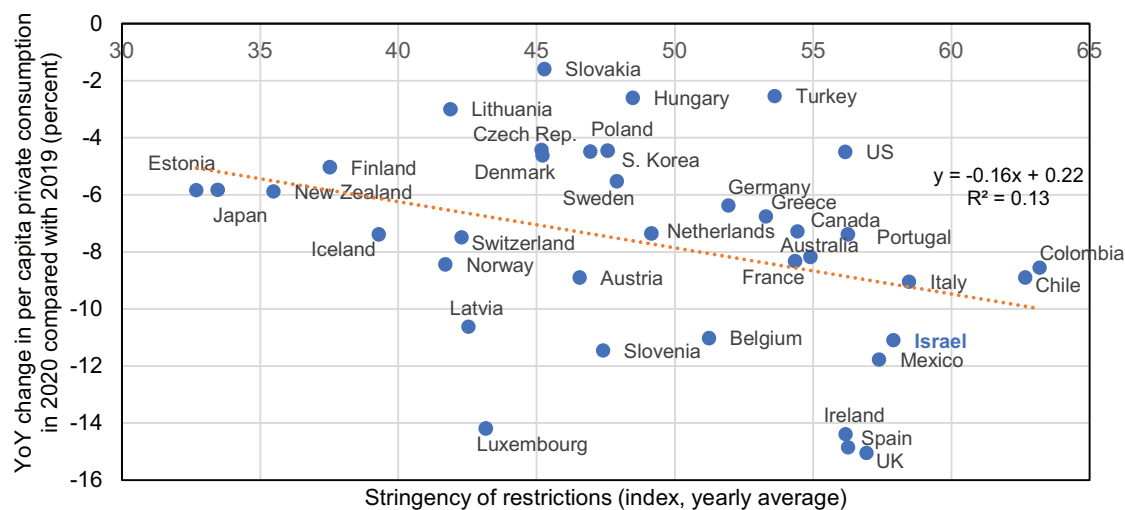
A blow to income is expected to motivate the smoothing of consumption, meaning there will be less of an impact to consumption than to income, afforded by a decline in the savings rate. In contrast, the restrictions work as a kind of forced savings. The decline in consumption of durable goods at a lower rate than that of other consumption, the increase in the rate of private savings, and the fact that households' nonhousing debt narrowed, are consistent with the determination that the restrictions and behavioral changes had a greater effect than the impact on income might have.⁶ Moreover, private disposable income increased in 2020, partly thanks to the increase

³ Since 1965, there has been a yearly decline in per capita consumption 11 times. The decline was greater than 1.7 percent only twice, including 1984 when it declined by about 9 percent.

⁴ Several studies point to voluntary social distancing's contribution to a decline in mobility, particularly in advanced economies. Some of them even show that the effect in these countries was greater than that of the lockdowns. See IMF (2020), *World Economic Outlook*, October, Chapter 2.

⁵ There were behavioral changes by the public in Israel that affected consumption beyond the direct impact of the decline in income, although to a lesser extent, in the 2001–3 crisis as well (Section 4 below).

⁶ The greater uncertainty may also increase precautionary saving. However, such saving would have been expected to affect the consumption of durable goods to a greater extent than other consumption. The decline in nonhousing debt reflects a decline in demand for this debt, since the interest rate on such debt also declined.

Figure 1.1**Restrictions on Activity and Percent Change in Per Capita Private Consumption, OECD Countries**

The stringency index of the restrictions is described in Box 1.1. The figure for each country is the average daily level of the index during the period from January 1 to December 31, 2020.

SOURCE: Based on Oxford COVID-19 Government Response Tracker, OECD, and Central Bureau of Statistics.

in transfer payments. The industry composition of activity that was harmed led to a particularly serious impact to employment among low-wage earners, meaning those with a greater marginal propensity to consume, but the broad government assistance moderated the impact to their income, and therefore to aggregate consumption. The decline in consumption was focused on services produced by the economy, which should have increased the impact to GDP. However, an important part of the decline in private consumption was due to the sharp decline in Israelis' travel abroad, which mainly reduced imports and not GDP.

Exports played a key role in softening the crisis's impact on the economy. Despite the sharp decline in world trade and in OECD imports (Figure 2.8) and the paralysis of incoming tourism, Israel's exports (excluding diamonds and startups) increased by 1.9 percent in 2020. Israel's export performance was also particularly good when compared to other advanced economies, and mainly reflected the continued rapid growth of the export of advanced services, which account for a high proportion of Israel's exports. These exports enjoyed global demand that remained strong, particularly in a number of fields in which Israel specializes, such as computer communications and information security, for which demand increased in view of increased online activity during the crisis. At the same time, the impact of the health restrictions on the functioning of these export industries was slight compared with other industries, partly because of their abilities to rely on working from home to a large extent, and because policy worked as

Exports played a central role in moderating the impact to the economy. The continued rapid growth of advanced services exports was key.

much as possible to prevent the restrictions from affecting their operations during the lockdowns. The high productivity and value added of advanced exports accentuated their contribution to GDP and to the difference between the impact to GDP and the impact to the labor market in 2020. However, there was marked variance within the advanced export industries, with some companies suffering a greater impact, lowering salaries, and reducing their work force (Box 2.2).

The effect of public consumption and investment on changes in aggregate activity this year was slight. Public consumption increased by only a moderate amount in 2020, and did not reflect the intensity of the fiscal response to dealing with the crisis—which was focused on transfer payments and other tools as detailed below. Fixed capital formation (excluding ships and aircraft) declined by 3.6 percent. Only part of this decline (such as the decline in the volume of residential construction) has to do with the crisis, while the rest is explained by other factors (such as the completion of development of the Leviathan natural gas field). An important part of the decline in investment (in the fields of energy and transport vehicles) was reflected in a decline in imported inputs, such that its effect on GDP was slight. In other industries, investment continued to grow this year as well.

The government-imposed restrictions on economic activity focused the impact of the crisis on industries whose activity involves physical proximity.

The government-imposed restrictions on activity, and the changes in public behavior, focused the impact of the crisis on industries whose activity involves physical proximity, such as hospitality and food, some personal services, transportation, and part of the retail industry. There was a particular impact to industries where activity involves gatherings and a high number of participants, such as the art, recreation, and leisure industry, since the restrictions on their activity remained relatively strict throughout the entire period—even during the easements between the lockdowns. Some of these industries were also seriously impacted by the paralysis of incoming tourism. (A description of the characteristics of the industries that were particularly hard hit appears in Box 2.1 of this Report.) In contrast, certain industries, not only the advanced export industries, were only slightly hurt, and some even increased their revenue during the crisis relative to the same period in the previous year (Table 5.2 in Chapter 5 of this Report).

The physical-proximity-oriented industries employ many workers, so the impact to those industries led to a sharp increase in the broad unemployment rate. The composition of employees in these industries was reflected in a particularly serious impact to the employment of low-wage earners. The low labor productivity in these industries contributed to the fact that the effect on GDP was smaller than the decline in the number of employees, and therefore to the gap between the decline in GDP and the jump in unemployment. The increase in productivity in 2020 was to a large extent due to this phenomenon and not to a real increase in productivity among those who remained employed. Some of these industries are characterized by a large number of small businesses and self-employed. This explains the particularly harsh impact absorbed by these businesses during the crisis, and the focus of some of the policy

measures on helping them, as described below. Box 4.2 of this Report illustrates how small and micro businesses were harder hit than larger businesses.

b. The labor market

The uniqueness of the current crisis is also reflected in the labor market, both in the intensity of the impact to employment and through other phenomena derived from the nature of the industries that were affected, chiefly the differential impact on workers and the gap between GDP and employment, which are discussed above.

Unemployment, which in 2019 reached its lowest level in decades, jumped to an average of 15.7 percent (in its broad definition) in 2020—a jump of about 12 percentage points that is unprecedented in Israel.

The government-imposed restrictions on activity led to a strong and immediate reaction in the labor market. In contrast with the normal business cycle and previous crises, in which the labor market reacts with some lag to a slowdown in demand in the economy, the market reacted directly to the restrictions, particularly those having directly to do with the closure of businesses and traveling to work places. Accordingly, there were sharp fluctuations during the year in the broad unemployment rate, which peaked during the first lockdown with the number of unemployed reaching about one million.

Another unique characteristic of the crisis is the volume of the use of furloughs—a mechanism that existed even before the crisis, but was utilized until then only sparingly. Almost the entire change in unemployment in 2020 was due to the furloughing of employees (as opposed to dismissals), which made it necessary to relate to the broad unemployment rate, which includes these employees.⁷ The government took additional measures beyond enabling the broad use of furloughs, such as relaxing the conditions for receiving unemployment benefits and extending the eligibility period for them to June 2021. These measures made it easier for the unemployed, helped reduce the impact to their income and their uncertainty, and thereby helped maintain demand in the economy. Alongside this, measures were taken during the year that were intended to encourage their return to employment and reduce the concern that these measures would have too great an impact on employees' incentives to look for work and on employers' incentives to employ them. For more on the advantages and disadvantages of the furlough model (including compared to models used abroad) and regarding all of the measures taken by the government in the labor market, see Chapter 5.

As stated, due to the nature of the industries that were affected, the impact to employment was particularly sharp among workers with low wages and low education levels. This also led to an increase in the average wage that does not reflect an increase in the wage of the persistently employed. However, the crisis also affected employees who are stronger than those who are prone to unemployment during normal times.

Almost all of the increase in unemployment in 2020 was due to employees being furloughed. The government eased the conditions for receiving unemployment benefits, and extended the period of eligibility for them until June 2021.

The impact to employment was particularly sharp among workers earning low wages and those with little education.

⁷ As stated, this rate also includes individuals who left the labor force due to the crisis.

Their socioeconomic characteristics, as well as their employment connection with the labor market, were stronger than those of the people who were unemployed prior to the crisis. This is not necessarily unique to the current crisis, and it is likely related to the significant growth in the number of unemployed.

The impact to the employment of young workers was greater than the impact to the employment of other workers, which was observed in previous crises in Israel as well. The impact to the employment of older workers (aged 55–65) was smaller than to the employment of those younger than them. However, the impact to the employment of older workers relative to that of young workers (25–34) was stronger than in previous crises. The nature of the current crisis may be a contributory factor in this due to the increased risk of infection to older workers or due to their lower ability to work from home.

Table 1.1
Main Developments, 2015–20

	2015	2016	2017	2018	2019	2020
Population (yearly average, million)	8.4	8.5	8.7	8.9	9.1	9.2
Nominal GDP (NIS billion, current prices)	1,167	1,224	1,269	1,330	1,407	1,384
Per capita GDP (NIS thousand, current prices)	139.3	143.2	145.8	149.8	155.4	150.1
Private consumption (NIS billion, current prices)	634.3	670.9	694.6	728.6	762.2	688.8
Gross domestic investment (NIS billion, current prices)	232.4	258.5	273.1	288.8	300.4	301.3
Public consumption (NIS billion, current prices)	261.4	273.4	286.5	304.1	317.8	333.6
Goods and services exports (NIS billion, current prices) ^a	337.6	332.4	335.6	363.5	384.2	372.9
Goods and services imports (NIS billion, current prices) ^b	292.7	307.4	319.1	353.0	357.4	310.2
GDP (percent rate of change)	2.2	3.8	3.6	3.5	3.4	-2.5
Private consumption (percent rate of change)	4.1	6.4	3.3	3.6	3.8	-9.5
Gross domestic investment (percent rate of change)	0.9	10.4	6.0	2.5	3.5	-1.6
Public consumption (percent rate of change)	2.8	4.2	3.5	3.9	2.8	2.7
Goods and services exports (percent rate of change) ^a	-0.6	-0.8	5.5	6.0	5.5	1.9
Goods and services imports (percent rate of change) ^b	2.1	9.2	6.8	5.1	5.0	-8.0
Current account of the balance of payments (surplus, \$ billion)	16.3	11.8	10.3	9.9	13.4	20.1
Overall government deficit (percent of GDP)	1.6	2.0	2.1	4.3	4.5	11.9
Public debt (percent of GDP)	63.8	62.1	60.6	60.9	60.0	72.6
Employed Israelis (thousand) ^c	3,643.8	3,736.9	3,824.8	3,905.1	3,966.9	3,913.4
Real wage per employee post (yearly average, percent rate of change)	2.9	2.8	2.8	2.7	2.0	7.8
Unemployment rate, aged 15 and up (yearly average, percent) ^d	5.3	4.8	4.2	4.0	3.8	15.7
Inflation (December compared to the previous December, percent)	-1.0	-0.2	0.4	0.8	0.6	-0.7
Bank of Israel interest rate (yearly average, percent)	0.1	0.1	0.1	0.1	0.3	0.1
Real one-year interest rate (yearly average, percent)	-0.5	-0.1	-0.1	-0.8	-0.8	0.1
Nominal yield on 10-year government bonds (yearly average, percent)	2.18	2.00	2.11	2.16	1.59	0.82
Real yield on 10-year government bonds (yearly average, percent)	0.50	0.43	0.57	0.51	-0.01	-0.50
Real effective exchange rate (yearly average, percent rate of change)	0.4	-1.5	-4.4	2.1	-2.5	-3.1
NIS/\$ exchange rate (yearly average)	3.89	3.84	3.60	3.59	3.56	3.44
Tel Aviv 125 index ^e	2.0	-2.5	6.4	-2.3	21.3	-3.0
World trade (percent rate of change)	2.8	2.3	5.7	3.6	1.0	-9.6

^a Excluding diamonds and startups.

^b Excluding defense imports, ships, aircraft, and diamonds.

^c The number of employed persons in 2020 includes temporary absentees for reasons having to do with COVID-19.

^d The figure for 2020 relates to broad unemployment, which includes the unemployed (normal definition), temporary absentees for reasons having to do with COVID-19, and nonparticipants due to COVID-19.

^e Nominal rate of change - the last day of December compared to the last day of the previous December.

SOURCE: Based on Central Bureau of Statistics and International Monetary Fund.

Table 1.2
Economic indicators: International comparison^a, 2011–20

	2011–2018 average				2019				2020			
	Israel	US	Eurozone	OECD	Israel	US	Eurozone	OECD	Israel	US	Eurozone	OECD
GDP growth rate (percent)	3.6	2.3	1.3	2.1	3.4	2.2	1.3	1.6	-2.5	-3.5	-6.6	-5.5
Per capita GDP growth rate (percent)	1.6	1.6	1.1	1.4	1.5	1.7	1.0	1.1	-4.2	-4.0	-6.9	-6.0
Per capita GDP (\$ thousand, current prices)	36.9	55.9	41.7	37.3	43.6	65.3	50.7	39.5	43.7	63.1	-	-
Population growth rate (percent)	1.9	0.7	0.3	0.6	1.9	0.5	0.3	0.5	1.8	0.5	0.3	0.5
Civilian labor force participation rate, ages 25–64	79.3	77.2	79.0	77.1	80.4	78.2	80.6	78.4	79.2	-	-	-
Inflation rate (during the year)	0.9	1.8	1.3	1.9	0.8	1.8	1.2	2.1	-0.6	1.2	0.3	1.4
Exports (percent of GDP) ^b	29.5	12.9	45.2	28.8	28.1	11.7	48.3	29.8	27.1	-	45.4	-
Gross investment (percent of GDP)	20.9	20.4	20.6	22.3	21.4	21.0	22.3	23.3	21.8	20.3	21.3	22.4
National savings (percent of GDP)	23.9	19.0	23.5	23.3	24.7	18.6	25.2	24.5	26.8	17.7	23.7	23.4
Current account (percent of GDP)	3.0	-2.3	2.9	0.0	3.4	-2.2	3.1	0.3	5.0	-3.4	3.0	-0.2
Public expenditure (percent of GDP) ^c	39.6	36.1	48.2	43.9	39.8	35.7	-	42.6	46.9	47.2	-	49.4
Tax revenue (percent of GDP) ^d	30.9	25.5	37.2	35.4	30.3	25.3	37.7	35.9	29.9	25.8	36.6	34.9
Gross public debt (percent of GDP) ^e	64.7	104.6	89.8	84.4	60.0	108.7	84.0	82.5	72.6	131.2	-	-

^a Figures for the eurozone and OECD countries are weighted averages of the data for the countries in each group, as published in the OECD Economic Outlook.

^b For Israel—exports excluding diamonds.

^c Deficit and expenditure data for Israel are adjusted to the accepted international definition.

^d Data for the eurozone and OECD countries are the simple averages of the data for the countries in each group. Data for the eurozone do not include Latvia, Malta or Cyprus.

SOURCE: Based on International Monetary Fund and OECD.

c. The current account and national savings

The current account surplus increased greatly. Imports dropped sharply, chiefly due to the decline in Israelis traveling abroad.

The economy has been running a current account surplus for years, and the crisis contributed to the marked increase in that surplus in 2020. While exports grew at a lower rate than in previous years, imports dropped sharply. The crisis's contribution to the decline in imports was due first and foremost to the sharp decline in Israelis traveling abroad (which more than offset the impact to foreign exchange receipts from incoming tourism), as well as the declines in global oil prices and in fuel consumption due to the decline in domestic travel. These temporary factors, alongside other, sometimes long-term ones, created appreciatory pressure on the shekel. The prolonged success of advanced exports has contributed over time to the current account surplus, and this contribution became more pronounced in 2020.

There was anomalous growth in the national savings rate this year.

The expansion of the current account surplus in 2020 reflects an anomalous growth in the national savings rate, both compared with recent years (alongside the small increase in investment) and compared with other countries (Table 1.2). It is due to an even more significant increase in private savings, which more than offset the decline in public savings. This shows that other than the potential effect of considerations of consumption smoothing and Ricardian considerations⁸, private savings were apparently affected to a great extent in 2020 by the characteristics of the crisis that acted to lower private consumption and increase these savings (forced savings or precautionary savings), as described above.

d. Inflation and the exchange rate

1. Inflation

The inflation rate was lower this year than in previous years.

The COVID-19 crisis has also had a marked effect on the development of inflation. The inflation rate in 2020 was -0.7 percent, significantly lower than the rate in 2019, and the lowest since 2016. While the decline of the inflation environment began in the months prior to the onset of the crisis, it intensified in the first months of the crisis, and stabilized at a low level later in the year. Price declines were recorded in most CPI components, which is consistent with the broad impact of the crisis on private consumption as described above.

An important part of the crisis's impact on inflation is due to its effect on the global economy. The declines in global energy and food prices, mainly at the beginning of the crisis, made a significant contribution to the decline in inflation in Israel. The accelerated appreciation of the shekel, which was only partly due to the crisis, also contributed to the decline of inflation. The inflation rate also declined in other OECD countries at the beginning of the crisis, although the decline in Israel was steeper (for more information, see Chapter 3).

⁸ Ricardian considerations are those that are expected to lead individuals to increase private savings in view of the decline in public savings, knowing that in the future they will be asked to finance the repayment of the increased public debt.

Rent prices increased only moderately, in contrast with their relatively rapid increase in recent years, when they made prominent contributions to inflation. It seems that the change reflects the crisis's effect on the housing market, partly due to the unique impact on the employment of young people and low-wage earners, who generally have high rental rates, to students returning to live with their parents, and possibly also to a decline in demand for rental apartments on the part of tourists. The significant moderation in the increase of rent prices is prominent in view of the accelerated increase in home prices (which are not included in the Consumer Price Index) in 2020, which may be further evidence of the crisis's excessive impact on the weaker layers of society. Home buyers generally have a relatively high income, and the increase in home prices, alongside the continued accelerated growth of housing debt, is consistent with a relatively low impact on demand for home ownership (as opposed to demand for housing services) on the part of this population group that suffered less of an impact from the crisis.⁹

2. The exchange rate

Following a short and sharp depreciation in March that had to do with the dollar liquidity crunch in the financial markets at the beginning of the crisis (as described below), the shekel appreciated later in the year, with the appreciation accelerating toward the end of the year. In terms of the nominal effective exchange rate, the shekel appreciated by a total of 5.5 percent during the year. The contributory factors to this appreciation included the continued surplus in the current account of the balance of payments, which was augmented this year by the crisis's effect on its expansion, as described above; foreign direct investments in Israel, particularly in the advanced export industries, which continued at an increased pace in 2020; temporary capital flows that are not necessarily connected with the crisis or changes in the fundamental factors of the economy; and the weakness of the dollar globally. The Bank of Israel acted to moderate the pace of the appreciation by increasing its foreign exchange purchases.

The temporary capital flows that caused appreciatory pressure included foreign exchange sales by the institutional investors as part of adjustments they made to their asset portfolios in view of the increase in the value of their assets abroad. Even though the direction of these adjustments is temporary in nature, their large volume reflects a fundamental factor in the economy: a prolonged increase in the surplus of assets vis-à-vis abroad, including the increase in investments abroad by institutional investors. Israel's accession to the WGBI Global Bond Index, which increased foreign investment in Israel government bonds, also contributed to the appreciatory pressures in 2020.

Following a short and sharp depreciation in March, the shekel continued to appreciate during the rest of the year.

⁹ The reduction of the purchase tax rate for those purchasing a second home or more (investors), and the decline in the interest rate on mortgages also supported demand for homes.

e. Financing of the business sector

At the beginning of the crisis, there was a shakeup of the financial markets in Israel and abroad. The rapid intervention by the Bank of Israel and other central banks, and broad and prolonged programs, led to the stabilization of the markets in Israel and abroad respectively. The government and the Bank of Israel used broad programs to ease the terms of credit, thanks to which—in part—the crisis had only a moderate impact on the volume and cost of financing.

The volume of total business sector debt was almost identical to that of the previous year, and the cost of financing the debt also remained virtually unchanged.

Total business sector debt remained almost identical to its volume in the previous year. The cost of financing, despite the differences between the various components and fluctuations during the year also remained virtually unchanged. It therefore seems that the various forces affecting demand for credit and its supply offset each other to a large extent. The decline in activity and in demand for investments in view of the crisis acted to reduce demand. In contrast, the distress of many businesses increased demand for credit for liquidity and survival purposes. The increase in the risk level acted to lower the supply of credit and make it more expensive, while the intervention by the government and the Bank of Israel served to expand it.

Small businesses had difficulty obtaining bank credit at the outset of the crisis, with credit largely being provided through State-guaranteed funds. The Bank of Israel implemented programs to ease financing terms for such businesses.

Even though over the course of the year the bank debt of both large businesses and small businesses increased at a low rate, its development during the year reflected important differences in the difficulties posed by the crisis and the effect of the policy measures that were adopted. Large businesses generally managed to use bank credit to deal with the crisis, utilizing existing lines of credit to a large extent at the beginning of the crisis, with the balance declining later on. In contrast, small businesses that were hard hit by the crisis had difficulty obtaining bank credit initially, and such credit was generally given as part of the State-guaranteed funds. The activity of these funds was expanded, although too slowly. The Bank of Israel also implemented programs to ease financing terms for these businesses, mainly through the provision of loans to the banks at very low, and then negative, interest rates, as detailed in the following section. The banks' interest rates to large businesses remained similar to what it was in the previous year, while the rates to small businesses declined slightly, evidence of the effect of the State-guaranteed funds and the programs run by the Bank of Israel in relation to these businesses.

Alongside the monetary policy steps detailed below, the Bank of Israel acted through the Banking Supervision Department to increase the volume of bank credit through regulatory leniencies for the banks. Furthermore, as part of the loan repayment deferral outlines initiated by the Bank of Israel, a significant volume of payments were deferred, mainly in respect of housing loans but also in respect of loans to small and micro businesses. Later in the year, most such businesses resumed their loan repayments that had been deferred at the beginning of the crisis.

3. ECONOMIC POLICY

a. Fiscal policy¹⁰

1. Scope of response and the fiscal aggregates

The good state of the economy prior to the crisis, and particularly the low level of the public debt to GDP ratio (even though the structural deficit was high) enabled the government to adopt a powerful and unprecedented fiscal expansion in order to deal with the economic ramifications of the crisis. This response also reflected the assessment that this crisis would be limited in time despite the uncertainty regarding its precise duration, and that it is not due to a structural problem in the economy. The response focused on increasing government expenditures, mainly transfer payments. The government also acted to provide State-guaranteed loans to businesses, the immediate budgetary cost of which is slight.¹¹ The increase in expenditures, alongside the smaller impact of the decline in government revenue and the decline in GDP spiked the budget deficit from 3.7 to 11.6 percent of GDP, and the public debt to GDP ratio from 60 percent to 72.6 percent.

The main characteristics of the fiscal policy response in Israel—a marked increase in expenditure and the deficit, focus on safety nets for employees and businesses through transfer payments, State guarantees for loans, and an increase in healthcare expenditure—were similar to the characteristics in other advanced economies. The increase in the public debt to GDP ratio was slightly lower than the average increase in the OECD countries.

In the absence of an approved State budget, fiscal policy was conducted with a continuation budget that prevents the growth of expenditure. The government adopted arrangements that enabled it to increase the budget in order to deal with the crisis (“COVID boxes”). The use of these boxes helped the government clarify that these were one-off expenses in view of the crisis. However, the lack of an approved budget for such a long period impairs the ability to budget many items and determine clear priorities. This places extra emphasis on the need to approve a budget for 2021 and to maintain the institutionalized frameworks that are essential for managing fiscal policy and establishing its credibility over time.

Despite the marked increase in debt, yields on the debt did not increase, and Israel’s credit rating remained in place. Factors that preceded the crisis, including the strong fundamental state of the economy and the continued decline in the public debt to GDP ratio, contributed to this, as did developments during the crisis such as the Bank of Israel’s intervention in the secondary government bond market (and the intervention of other central banks in global markets, which contributed to the low interest rate environment in the advanced economies), investors’ perceptions regarding the

The government adopted an intensive fiscal expansion program. The public debt to GDP ratio increased to 72.6 percent.

Despite the marked increase in public debt, yields on that debt did not increase, and Israel’s credit rating remained in place.

¹⁰ The government’s policy in the health channel to lower infection is broadly outlined in Box 1.1.

¹¹ The State’s role as insurer makes it possible to leverage the provision of loans by the banks through a relatively small budgetary cost, as long as the risks are not realized to a significant extent.

temporary and necessary nature of the fiscal expansion, and the fact that the increase in the debt was not anomalous compared with other advanced economies.

2. *Characteristics and constraints of the intervention*

The leading considerations in the design of government expenditure during the crisis were assistance and compensation, and not increasing demand in the economy.

In contrast with bust periods or other crises in which the increase in expenditure (or reduction of taxes) is mostly intended to support aggregate demand, the nature of this crisis dictated that the leading considerations in the design of expenditures were assistance (safety net) and compensation, and not increasing demand. These characteristics are linked to supply restrictions, the government's role in imposing them, the understanding that the rehabilitation of economic activity depends on a solution to the exogenous shock, and the assumption from an early stage of the crisis that such a solution—vaccination—would be found in the near future, which would make the crisis one of limited duration. In view of these considerations, the increase in expenditure focused on transfer payments and not on public consumption or investment. However, the budget of the healthcare system was greatly increased in order to deal with the pandemic.

The low weight given to encouraging demand was due to its small benefit in view of the government-imposed restrictions on business activity and the changes in public behavior, as well as the tension between encouraging economic activity and the desire to avoid the concomitant increase in morbidity. Moreover, in contrast with other crises in which the exogenous factor is what ignites the crisis but encouraging demand can gradually rehabilitate activity, the chance of this happening in the current crisis is low as long as the pandemic is not eradicated or at least restrained.

The assistance to businesses was largely intended to help them survive the crisis. The issue of survival was central for a number of reasons: The intensity of the impact to businesses made it difficult for even the strongest businesses to survive; the restrictions on activity greatly lessened the government's ability to indirectly assist businesses, as it did in other cases, by encouraging demand; and maintaining the businesses would enable them to renew their activity rapidly when the time comes and would reduce the costs and delays involved in re-establishing the businesses.

Survival was also a prominent consideration in the need to help many households get through the period in view of the serious impact to their income—workers that were dismissed or furloughed, as well as self-employed and business owners whose activity was shut down or seriously affected. The need for special assistance was acute for the self-employed, since they are not entitled to unemployment benefits.

The direct and clear role that the government played in harming employment and businesses through the restrictions it imposed on activity increased its public obligation to compensate those harmed by its decisions.

The balance of considerations was reflected in the design of the measures taken. The measures relating to unemployment and furlough payments, the grants to the self-employed, and the direct assistance to businesses (such as easing municipal taxes and a grant for fixed expenses) focused on those who were directly impacted by the restrictions on activity. In contrast, there were only a few measures taken,

mainly toward the end of the year, to increase the income of those with low incomes who generally have a high marginal propensity to consume (such as bringing the 2021 earned income tax credit forward). The industry composition of the assistance (for instance to the transport and tourism industries) also reflects the survival and compensation considerations. In contrast, public investments were not significantly expanded as a means of increasing demand.¹² During the crisis, a number of broad assistance packages were put in place (grants to all civilians), which were not efficient for focusing assistance on those harmed by the crisis.

The design of the assistance measures for businesses and households involved an inherent tension between contrasting considerations. This tension and the balance that was chosen were influenced by the nature of the crisis and were reflected in a number of characteristics of the measures:

Broad or focused assistance: Broad eligibility based on a few simple criteria makes it possible to extend large-scale and rapid assistance, but impairs its focus. More complex criteria (such as the extent of impact to a business) make it possible to focus the resources on the target population but require individual information, involve complexity, slow the implementation, and may have an adverse effect on take-up rates. Problems of this type were reflected when implementing some of the assistance measures. Due to the nature of the crisis and the lack of proper data infrastructure, a relatively large weight was given to the broad assistance, particularly at the earlier stages.

Assistance to businesses in view of declines in efficiency. In general, it is preferable during a crisis to designate assistance to businesses that have strong foundations and whose distress is temporary and due to the crisis. Nonselective assistance may support the existence of inefficient businesses. The state of the economy prior to the crisis increased the probability of the existence of such businesses, and crises are perceived as an opportunity to increase productivity in the economy in that they lead to their replacement with more efficient firms (“creative destruction”). The extreme circumstances of the current crisis, and the impact to businesses as a result of the restrictions imposed by the government itself, made it very difficult to distinguish between efficient and inefficient businesses, made this consideration less important, and supported the establishment of more lenient criteria for assisting businesses.

Generous assistance to the unemployed against a disincentive to work: Relaxing the conditions for receiving unemployment benefits, increasing their generosity, the commitment to provide them until June 2021, and the broad implementation of a furlough mechanism provided important assistance to the unemployed, helped reduce their uncertainty regarding their income, and were all the more important in view of the government’s difficulty in reducing unemployment by increasing demand. The assistance thereby also contributed to maintaining demand in the economy. Under normal conditions, these considerations are balanced by concern that generous

¹² This is despite the fact that even in the first package of measures, amounts were budgeted for this. While the execution of a number of infrastructure initiatives, mainly train lines and public transit lanes, was accelerated, in this context the operational consideration of exploiting the decline in traffic in view of the restrictions and lockdowns was prominent.

assistance will impair the incentive to work. However, in the current crisis, reducing the number of people working at their workplaces was consistent with the objective of the restrictions imposed by the government and with the efforts to reduce infection in the economy. Nonetheless, during the year, concerns were raised that the measures as designed may have too much of an effect on the incentive of some workers to return to their jobs or to search for alternative work, as well as on the willingness of employers to maintain employment when the restrictions were tightened or return employees to work when they were loosened. In view of these concerns, the government adopted a number of measures to encourage the maintenance of employment and the recall of workers, and to encourage employees to return to work (in particular when the unemployment rate would drop), as detailed in Chapter 5.

In view of the serious impact to the retail and services industries, which are characterized by many small businesses and self-employed, a variety of measures were adopted to help them.

The particularly harsh impact on the retail and services industries, which are characterized by a large number of medium and small businesses, focused a lot of attention on assistance to such businesses. This was reflected in the government's assistance programs (grants and State-guaranteed loans through designated funds), and even in the measures taken by the Bank of Israel, as outlined below. The impact to these industries also explains the extent of the harm to the self-employed, and accordingly the precedents in assisting them set during the crisis.

Heavy emphasis was placed on assistance to small businesses through loans that were partly guaranteed by the government, but the provision of assistance in this channel was slow and limited at the outset of the crisis. The volume of the fund was increased a number of times during the year, and the rate of the guarantee was increased through the fund for high-risk small businesses. The funds' contribution to easing financing terms for small businesses is outlined above and discussed in greater detail in Chapter 4. This assistance mechanism shifts some of the risk to the government, but its impact on the volume of government expenditures is low as long as the risk is not realized to a significant extent.

The policy response in terms of both making and implementing decisions at times had difficulty keeping pace with developments in the economy. The development of the response during the year partly reflected the development of the crisis, the uncertainty regarding its duration, the experience gleaned from implementing the measures, and the effort to focus the assistance on the target population. The slowness of the response and the difficulty in focusing it on the target groups were partly due to the lack of the proper data infrastructure necessary for the efficient and rapid design of focused assistance programs. The lack of a built-in institutional infrastructure for the rapid and automatic deployment of a broad socioeconomic safety net was also prominent. This disadvantage was felt, for instance, in view of the need to assist the self-employed and the need to greatly expand the assistance to small businesses. Even though the assistance to the unemployed was provided rapidly, it was based on a furlough mechanism that was not initially intended to deal with crises of this type. A built-in institutional infrastructure will also make it possible to define in advance the conditions under which the assistance will be scaled back, for instance the extent of the decline in the unemployment rate. (For more discussion see chapters 5 and 6.)

b. Monetary policy and its intervention in the financial markets

Monetary policy was focused at the outset of the crisis on stabilizing the financial markets, and later on easing financing terms. Similar to fiscal policy's emphasis on survival as outlined above, the emphasis on easing financing terms reflects the need to assist businesses and households in getting through the crisis period. In order to achieve these targets, monetary policy made use during the year of a variety of unconventional tools, some of which had no precedent in the economy.

In addition to these tools, the Bank of Israel lowered the monetary interest rate one time, by 0.15 percentage points to 0.1 percent. That rate was maintained through the end of the year. The Bank also persisted with its foreign exchange intervention policy in order to prevent an excessive appreciation. As part of this, the Bank purchased \$21 billion in foreign exchange—a much larger volume than the purchases in each of the years since the Bank resumed its foreign exchange market interventions in 2008 (with the exception of 2009, during the Global Financial Crisis, when foreign exchange purchases were only slightly lower, at about \$19 billion).¹³

The extensive use of these tools stood out against the background of the single reduction of the interest rate. This mix reflected a number of considerations. The monetary interest rate's proximity to zero limited, but did not rule out, the maneuvering space for this tool. These tools were more in line with the unique policy needs derived from the crisis, as described below. The experience gained both in Israel and abroad in the use of quantitative and unconventional tools since the 2008 crisis, as well as the fact that in this crisis as well, leading central banks made widespread use of them, made it easier for the Bank of Israel to use them during the current crisis.

1. Stabilizing the markets and ensuring their proper functioning

The rapid spread of the pandemic at the beginning of the crisis generated panic in the financial markets both in Israel and abroad. The widespread withdrawals from the mutual funds created a shekel liquidity difficulty, and declines abroad, which spiked institutional investors' demand for dollars, created a dollar liquidity problem that was worsened due to the dollar liquidity problem abroad. These developments led both the mutual funds and the institutional investors to sell off a significant volume of government bonds, to the point of impairing the proper functioning of the market, and created strong downward pressure on the shekel. In mid-March, the Bank of Israel acted to stabilize the markets and ease the two liquidity problems. It announced that it would purchase government bonds in the secondary market, and that it would carry out swap transactions with the financial institutions using government bonds as collateral. It also announced that it would make dollar/shekel swap transactions with the banks, up to a total of \$15 billion. These measures contributed to calming the financial markets, as detailed in Chapter 3. The calming was also reflected in

At the outset of the crisis, monetary policy focused on stabilizing the financial markets. Later on it focused on easing the terms of finance.

The Bank of Israel lowered the interest rate by 0.15 percentage points and purchased significant amounts of foreign exchange.

¹³ On January 14, 2021, beyond the period reviewed in this Report, the Bank of Israel announced that it would purchase \$30 billion during 2021.

the exchange rate, and was assisted by the launch of swap programs between the large central banks at that time.

2. Easing financing terms

The Bank of Israel announced a program to purchase government bonds in the secondary market, as part of which it made significant purchases.

Later in the crisis, monetary policy focused on reducing the costs of finance and expanding the supply of credit in the economy. For this purpose, the Bank of Israel announced a program to buy NIS 50 billion in government bonds in the secondary market. The program was intended to impact longer-term yields, thereby reducing the costs of finance for those terms. Later on, the program was expanded by an additional NIS 35 billion. The actual purchases during the year totaled about NIS 46 billion. The Bank of Israel's use of this tool was not unprecedented, since it made purchases of this type in 2009 during the previous crisis, although the volume of purchases during the current crisis was much greater, and its March announcement of the large volume contributed immediately and significantly to lowering the yields on government bonds.¹⁴

During the crisis, for the first time in Israel, the Bank of Israel used two additional tools to ease financing terms. Their uniqueness is in the attempt to harness monetary tools to ease financing terms for defined segments of the business sector, as opposed to the generally broad nature of monetary policy.

The Bank of Israel operated a program of assistance to small businesses by providing loans to the banks at very low interest.

One tool focused on small businesses in view of the crisis's unique impact on them. The Bank of Israel announced the provision of long-term loans to the banks at a very low interest rate (0.1 percent), on condition that the banks would provide credit to small and micro businesses. The Bank of Israel also acted to expand the variety of assets that the banks could provide as collateral against credit as part of this program, to include mortgage portfolios (in addition to highly liquid assets such as government bonds). The program was later expanded, and its terms were tightened to make sure that the lower interest rate would be passed on to the businesses: The interest rate at which the Bank of Israel would provide the long-term loans was lowered to a negative rate (-0.1%), and the interest that the banks could collect from the businesses under this program was capped.¹⁵ At the end of the year, the Bank of Israel announced an additional channel of assistance to small and micro businesses, which would be activated at the beginning of 2021: swap transactions with supervised nonbank credit providers subject to the credit that they would provide to such businesses.

The Bank of Israel launched a program to purchase corporate bonds in the secondary market.

The second tool is a program that the Bank of Israel launched to purchase up to NIS 15 billion in corporate bonds in the secondary market. It is intended mainly to assist in lowering the costs of financing to large businesses that raise credit in the capital market. A detailed analysis shows that the intervention did lead to a reduction in the yield spreads on these bonds.¹⁶

¹⁴ For more information regarding central banks' interventions in the government bond markets, see Box 3.1.

¹⁵ The ceiling was set at a lower rate than the one set in the State-guaranteed funds. This program complemented access to credit through the fund for small businesses, and in particular it enabled access to credit for firms in industries that had difficulty raising credit (see Chapter 4).

¹⁶ See Chapter 3 of this Report, and in greater detail the Financial Stability Report for the second half of 2020.

Box 1.1

THE PANDEMIC IN ISRAEL AND EPIDEMIOLOGICAL POLICY TO DEAL WITH IT

This box reviews the development of the pandemic and the health measures adopted by the government in order to deal with it. This is due to their decisive importance to understanding the economic developments during the year reviewed in this Report.

a. The development and nature of the pandemic

The COVID-19 pandemic was first identified in China toward the end of 2019, broke out strongly there in January 2020, and spread rapidly around the world. The initial cases in Israel were identified at the end of February, and the number of cases began to climb rapidly in March. The volume of infections during the year fluctuated through three waves (see Figure 2 in Box 7.1). By the end of the year, about 426,000 Israelis had been diagnosed with the virus, and about 3,300 people had died from it, representing about 0.8 percent of the total number of confirmed cases. Infection and mortality jumped considerably in January-February 2021, with the number of deaths from the disease during those two months reaching almost 70 percent of the mortality level for all of 2020. On December 20, Israel began a widespread campaign to vaccinate the population, which began showing results a short time later.

Several of the virus's features, regarding both the nature of infection and the nature of the illness that it generates, are central to understanding the development of the pandemic and of the policy to contain it, as well as to understanding the policy dilemmas and issues concerning the behavior of both individuals and the public, and to linking them with the economic damage of the pandemic.

Infection takes place mainly during physical proximity between people. Therefore, the main way to reduce it (other than wearing masks and maintaining proper hygiene) is through the creation of distance between them. Those who are asymptomatic may also infect others, which greatly increases the spread of the disease and makes it more difficult for a containment policy to work. The pace of infection is influenced by individuals' personal behavior, a large part of which cannot be enforced but depends on the individual's good will. When the infection coefficient (the number of people that each infected person is expected to infect) is greater than 1, the number of infected people may increase exponentially, and the pandemic may grow out of control. Infection and morbidity rates differed significantly between population segments in Israel, apparently due in part to differences in the public's behavior and the extent of its compliance with guidelines. (For an analysis of sectoral morbidity patterns, see Box 7.1 of this Report.)

The health risk from the pandemic (serious morbidity and mortality) as perceived in 2020 was mainly to the elderly population and those in other risk groups, while the rest of the population was at much lower risk. The chances of the seriously ill surviving the disease are influenced by the quality of medical care they receive at the hospitals. This quality depends partly on the number of seriously ill patients at any given time relative to the hospital system's capacity. Since the illness develops gradually, the volume of serious morbidity at any time reflects infection that took place a few days to a few weeks beforehand. This makes it very important to prevent an increase in the number of those infected at any given time beyond a certain level ("flattening the curve").

At the beginning of the crisis, there was tremendous uncertainty regarding the extent of the danger from the virus. Assessments in this regard changed as more information was obtained in Israel and abroad, and with the experience gained from treating the seriously ill.¹ The significance of the number of COVID-19 deaths for assessing the danger of the disease was also subject to dispute. For instance, assessing excess mortality requires a sufficiently long time period to analyze the data. There are those who argue that the particularly high mortality rates from the disease among the elderly and those with serious background conditions may cause an upward bias in the mortality attributed to the virus. In contrast, some of the deaths caused by the disease around the world may not have been identified as such.

b. Government measures to reduce infection

Epidemiological policy focused on efforts to reduce the scope of infection, and particularly on attempting to prevent its increase beyond a certain level at any point in time. These can be grouped into four types of measures:

- Restrictions on economic and other activity—prohibitions on holding activities or guidelines for holding them under restrictions.
- Instructions for individual conduct—wearing masks, maintaining distancing, and recommendations for maintaining proper hygiene.
- Measures for the focused truncation of the infection chains—quarantine requirements, diagnostic examinations, and epidemiological investigations to identify people who have come in contact with a confirmed patient (contact tracing).
- Public information efforts to encourage behavior that reduces the chances of infection.

1. Activity restrictions

Most of epidemiological policy's effect on the economy involves the imposition of restrictions on economic and other activity and on the freedom of movement.² These restrictions can be divided into two types:

1. Prohibitions on conducting activity (such as closing business that receive the public, prohibiting flights, prohibiting certain activities by businesses such as seated attendance at restaurants, closing workplaces, closing the education system in whole or in part, restricting travel distances from home, or prohibiting activity that involves gatherings);

2. Guidelines for conducting activities under restrictions (such as restricting density and conduct at stores, shopping malls, businesses, and other workplaces, "Purple Badge" rules, capsules in the education system, and "Green Islands" for domestic tourism).

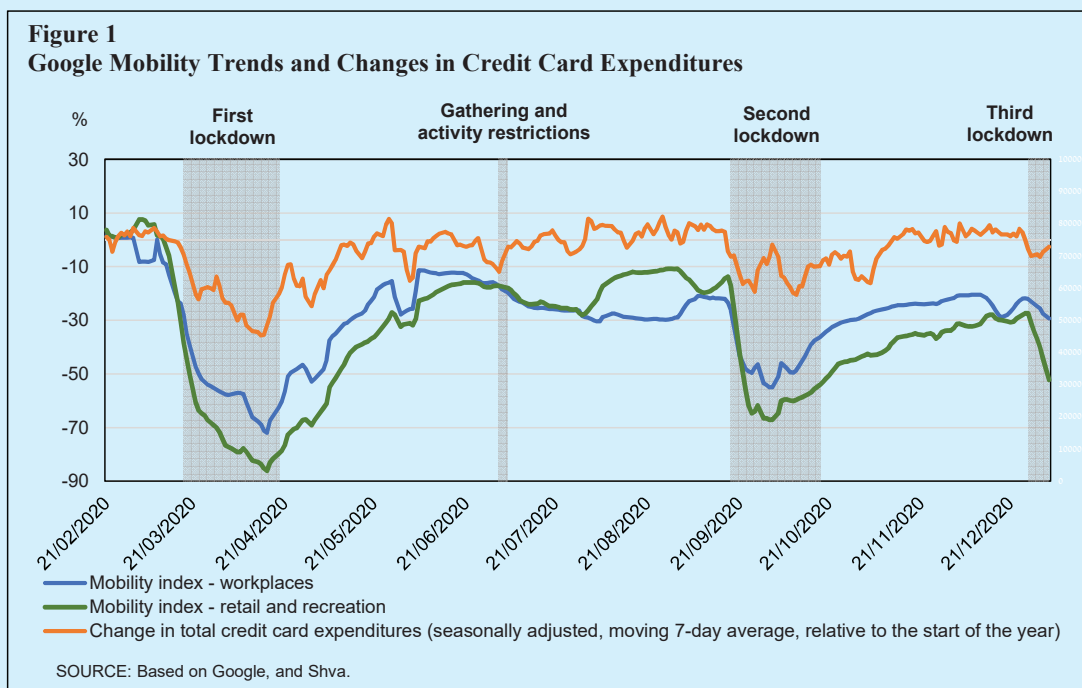
The reliance on prohibiting activity as a central policy tool was dominant at the beginning of the crisis. These prohibitions were rapidly expanded, reaching a peak during the first lockdown. This partly reflected the pace of events, uncertainty, and the difficulty in designing and rapidly implementing some of the other tools. Once the first lockdown was over, the guidelines meant to enable a broader scope of activity while

¹ The danger can also change due to variations in the virus. For instance, a more infectious mutation that does not increase the chances of a patient's death can also increase the overall mortality from the virus.

² There were also many restrictions imposed on noneconomic activity, which had tremendous impacts on well-being. However, this discussion focuses on the economic aspects.

reducing the risk of infection (COVID routine) took on greater importance. Since then, there have been ups and downs in the strictness and applicability of the restrictions, which reached two further peaks during the second lockdown that began with the Rosh Hashana holiday and the third lockdown that began at the end of December and became stricter in early January 2021. The restrictions' effect on activity is reflected in the sharp declines in mobility and consumption during the first two lockdowns (Figure 1). Following the sharp decline in mobility at the beginning of the second lockdown, it increased later during the lockdown, which is not unique to Israel.³

The timing of the changes in the strictness of the restrictions reflected the government's choice at each given time between epidemiological considerations and those concerning the economy and other aspects of well-being. Due to the time it takes from when restrictions are tightened until they are felt in the number of infected patients, it is proper to tighten restrictions relatively early from a purely epidemiological standpoint, even if morbidity rates are still low. However, the impact to the economy and to wellbeing, and the fact that morbidity rates at that time are not necessarily high, may tip the scales in favor of delaying the tightening of restrictions, or make it difficult to garner public support for the restrictions. These factors also served to accelerate the easing of restrictions relative to what would be derived from purely epidemiological considerations, as was clearly shown in exiting from the first lockdown. The first two lockdowns were imposed during holiday seasons, partly due to the desire to minimize their impact on the



³ See IMF (2020), pp 68–69.

economy, since there is less economic activity during those times in any case. The difficulty in securing public compliance with a partial lockdown and in enforcing it stood out at the beginning of the third lockdown.

The decisions on restrictions were sometimes characterized by numerous and frequent changes and by short notice between the decision and when it took effect, and even suffered from lack of clarity or excessive complexity in their details. These reinforced the uncertainty and confusion, worsened the impact to the economy, and apparently also had an adverse impact on the public's compliance.

Adjusting the strictness of the restrictions in a locality to the state of morbidity there could greatly reduce the overall impact to the economy and to well-being. This logic was behind the "traffic light program" through which a method was developed to classify localities according to their epidemiological status. This kind of differential approach was implemented during the year (for instance in the imposition of lockdowns and stricter restrictions on red localities), but only to a limited extent. Its widespread implementation for an extended period of time in Israel and its ability to generate a better balance between health and economy were therefore not put to a real test.

Even though the prevailing assessment was that the healthcare response to the pandemic (vaccination or medication) would be found in the foreseeable future, there was tremendous uncertainty regarding the duration that would be necessary until such a solution would be found. This uncertainty may have contributed to the difficulty in making decisions that would accelerate the creation of mechanisms for prolonged handling of the pandemic (such as expanding the epidemiological investigations, improving the ability to enforce the restrictions that were imposed, legislative changes, and adjustments in the education system). These mechanisms could have served as a partial alternative to restrictions on activity or laid a more orderly foundation for making the restrictions stricter or more lenient in accordance with the worsening or easing of the pandemic.

2. Measures for truncating the infection chains

In contrast with the restrictions discussed above, which are broad by nature and therefore have a large impact on activity, the measures to truncate the infection chains focus on identifying individuals with a greater chance of infecting others (those who have been infected or those exposed to an infected individual) and isolating them. Other than their direct contribution to containing the pandemic, such measures may be an alternative to some of the restrictions on activity. Following some delays at the beginning of the crisis, the examination system, which had to be established from scratch, was greatly expanded, with the number of examinations reaching about 100,000 a day by the end of December. The contact tracing system was expanded more slowly. Its efficiency and effectiveness also depend on the extent of the public's cooperation, and decline when the number of infected people is very large. The criteria for putting people into quarantine, and for the duration of that quarantine, affect the balance of its contribution to containing the pandemic against its harm to economic activity and well-being, as well as the extent of compliance with quarantine requirements. These rules also changed during the crisis and were subject to public dispute.

c. The population's behavior

The extent to which individuals keep to the health guidelines (such as wearing masks and maintaining distance) and the extent of compliance with the restrictions, chiefly restrictions on gatherings, have a tremendous impact on the infection rate. A high level of meticulousness could even enable the restrictions to be eased, thereby reducing the impact to the economy. One fundamental problem is that an individual may choose to comply less than the level desired for all of society. Less compliance increases the chance that that individual will infect others—an externality that he doesn't necessarily internalize. In addition, the extent of compliance by an individual or sector may also influence the compliance level of others.

The common solution to problems of externalities is enforcement and economic incentives, but the ability to apply those to the day-to-day behavior of the broad public is very limited. Under such circumstances general norms regarding compliance with guidelines and social solidarity are even more important. Solidarity should motivate individuals to keep to guidelines in order to lower the risk to others. It also influences individuals' preparedness to absorb economic and other impacts in order to reduce that risk. It therefore touches not only on compliance, but also on the dispute over the desired scope of the restrictions (see below). The question of solidarity also arose in the context of differences between sectors in compliance and enforcement and the concern over mutual negative effects on the level of compliance, as well as in the context of preparedness to accept differential restrictions in accordance with the local infection situation. A negative impact to solidarity may have future implications for economic and social policy.

Bearing the economic cost of quarantine of employees who needed it serves as an example of an externality, and presents an exceptional case in the current context in which an economic incentive for compliance can be provided. Quarantine is not intended to protect the person being quarantined, it is expected to protect others. However, the mechanism set out at the beginning of the crisis—financing quarantine days through the employee's sick days—put the entire economic burden on the employee and his employer. Compensating the employer (for instance as legislated in November) or the employee could provide an incentive for compliance.⁴

d. The dispute over the restrictions and lockdowns policy

The activity restrictions, chiefly the lockdowns imposed in Israel and many other countries, involve a serious impact to economic activity and other aspects of well-being. They therefore aroused major debate on the proper balance between economic and other considerations and health considerations, and posed significant dilemmas to policy-makers. The dispute influenced the decision-making process regarding the restrictions, and was reflected more than once in frequent changes to those decisions, which increased uncertainty in the economy.

⁴ In a survey conducted in Israel at the end of February 2020, 94 percent of respondents said that they would comply with quarantine regulations if they received monetary compensation, but just 57 percent said they would comply if they did not receive compensation (Bodas and Peleg, 2020). Andersen et al. (2020) found that payment for sick days in respect of quarantine (and other reasons connected with the pandemic) as implemented in the US during the crisis lowered the rate of those going to work.

The dispute surrounded the assessment of the restrictions' costs and benefits and the balance between them, and questions of principle regarding the limits of the economic (and other) price that should be paid in order to save human lives.

1. The dispute regarding the benefit: the lockdowns' contribution to reducing infection

Lockdowns were implemented in many countries as a means of halting the spread of the pandemic, and there is much evidence that they contributed to reducing mobility and infection.⁵ However, there is no unanimity in the research on this matter, and various factors make it difficult to refine the extent to which the lockdowns contributed to a decline in infection.⁶ For instance, since the lockdowns were generally imposed around times of sharp increases in infection, the public may have been extra cautious at that time, which would also have contributed to a decline in infection. It is also possible that the ebbing of the infection waves had to do with the natural progression of the pandemic.⁷

2. The dispute regarding the economic cost of the lockdowns

The difficulty in estimating the effect of the lockdowns, and the disputes regarding those estimates, also include the economic costs. A number of studies around the world have found that the lockdowns had a marked impact on economic activity, and that countries that implemented more stringent lockdowns experienced a steeper decline in growth rates.⁸ The immediate economic cost of the first lockdown in Israel was very high, but the cost was lower in the following lockdowns.

It is important to take the limitations of the estimations into account. First, estimations of the cost of the lockdown in terms of activity, which declined during the lockdown, do not reflect the impact to activity that would have been caused due to a worsening of the pandemic (and its impact on individuals' behavior) had there not been a lockdown.⁹ In the case of Israel, we must also consider this possibility while taking the public's compliance with the guidelines, the difficulty discovered in enforcing softer restrictions, the limited implementation of differential lockdowns, and other factors into account. In addition, some of the decline in economic activity during the lockdown—similar to the decline in infection—may not be due to the lockdown itself, but due to changes in individuals' behavior in view of the intensity of the pandemic at that time.¹⁰ In addition, the estimations do not take the full indirect and cumulative costs of the lockdowns into account.

⁵ For a survey of studies on this topic, see IMF (2020).

⁶ For instance, studies (Bjornskov (2020) and Bendavid et al. (2021)) found that the lockdowns had no statistically significant effect on mortality or on the growth rate of the number of infected people.

⁷ For documentation of this natural process, see Atkeson et al. (2020).

⁸ IMF (2020).

⁹ For a discussion of the findings that support the argument that removing the lockdown would make a limited contribution to increasing mobility and economic activity if the infection level had not declined, see IMF (2020).

¹⁰ Similarly, it can be argued that the health benefits of the lockdown are lower, since behavioral changes reduce the volume of infection.

3. The dispute over questions of principle: the desired balance between health and economic considerations

The issues of principle and values that focus on this part of the dispute are not unique to lockdowns, but arise in many policy questions. They have been brought into very sharp relief during the crisis in view of the magnitude of the economic and other costs and the loss of human life put in the balance. There are those who argue that the price Israeli society has paid for saving human life during the current crisis is excessive. The dispute was also heightened due to the separation between those bearing the economic (those whose livelihood was impaired) and other burdens and those deriving most the healthcare benefit from containing the pandemic (the elderly and other at-risk population groups). Accordingly, the aforementioned question of social solidarity was also brought into sharper relief. The harsh impact of the lockdowns and other restrictions to individual well-being, beyond the economic impact, played an important role in the dispute. This impact was also highly differential (Chapter 7).

The decisions that were made indicate the balance point that policy-makers chose in practice and the differences in the weight given to health considerations in different countries. In this context, particularly in relation to the beginning of the crisis and the decision on the first lockdown in Israel, it is worth remembering the need to act quickly under the conditions of great uncertainty that were prevailing at the time regarding the seriousness of the pandemic, when other tools to contain it such as epidemiological investigations and tests to verify infections were largely unavailable. These considerations all had an impact on risk management as perceived in real time. The pace of developments, the decisive importance of rapid responses, and the extreme uncertainty, indicate similarities with the 2008 financial crisis and the circumstances under which policy makers at the time had to make decisions, and differences with economic crises that originate from the real economy and generally develop more slowly. Similar to the 2008 crisis, it is important to judge policy not only according to the seriousness of the crisis in retrospect, but also taking into account how the situation was perceived in real time and the result that could have been obtained had the chosen policy not been adopted.

The tension between economic and health considerations also accompanied the decisions on restrictions and lockdowns later in the year, but in certain respects, the balance between them was different. In terms of the health considerations, there was less uncertainty regarding the seriousness of the pandemic, other tools for containing it were improved, and the healthcare system was better able to treat seriously ill patients. The price paid by certain countries that tried to avoid lockdowns or delayed imposing them had also become clear. In terms of the cost of the lockdowns, there was less of an impact to economic activity in Israel later in the year (thanks in part to greater adjustment to working from home and to online shopping), and the mechanisms for economic assistance to those affected by the crisis became more sophisticated. However, the cumulative impact to industries and businesses that remained closed or kept closing and opening worsened, as did other effects on well-being. It seems that for these reasons as well, the disputes regarding the lockdown policy did not subside and even worsened during the year.

The dispute over closing the education system emphasized many dimensions of the general dispute. The closure was intended to contain infection, but disputes arose regarding its effectiveness in doing so. The direct economic cost was due to parents' impaired ability to go to work and the efficiency of working from home. Its economic impact was also not uniform due to differences between industries, occupations,

and education levels in terms of the ability to work from home. The closure of the education system emphasized the nonmonetary impact on children's well-being and education, and the greater impact on weaker population segments, for instance due to gaps in the availability of computers and Internet access, which are essential for remote learning. It may also affect students' long-term achievements and increase gaps between them (Chapter 7). Remote learning reflects efforts to minimize the impact caused by health restrictions, but also emphasizes the difficulty in ensuring that it will help everyone to the same extent. The attempt to soften the restrictions through capsules in the schools was also difficult to implement. Compliance gaps between population groups and partial enforcement were prominent in relation to closing the education system, mainly in the *Haredi* (ultra-Orthodox) sector, and contributed to the general dispute.

The uncertainty regarding the duration of the crisis, particularly in its early stages, made it difficult to decide between creating mechanisms for the education system to deal with the pandemic over a long duration (for instance, remote learning and capsules) and shutting down studies while waiting for the rapid end of the crisis and adding school days at the expense of future vacations. Following the sweeping shutdown of frontal teaching in the education system that was prevalent worldwide at the beginning of the crisis, many countries acted later on to resume frontal teaching on a large scale. In contrast, Israel was prominent in its low volume of frontal teaching days since the opening of the school year in September 2020, relative to the other OECD countries. (For more information, see Chapter 7 of this Report.)

e. The pandemic and epidemiological policy from an international perspective

Figure 2 shows the great similarity among countries in the development of the pandemic. The pandemic spread rapidly and was typified by two major waves during the year.¹¹ However, there are significant differences between countries in the volume of infection during and between the waves, and some differences in the timing and duration of the waves. This variance partly reflects differences in policy and in the population's behavior. By international comparison, Israel did well coming out of the first wave in terms of the volume of infection, but this achievement dissipated rapidly. Within a short time, the volume of infection in Israel became one of the highest among advanced economies, and Israel entered the second wave (and exited from it) early. At the end of 2020 and the beginning of 2021, Israel entered a third wave. The morbidity situation worsened considerably in Israel, as well as in many other countries. As stated, the data presented here relate only to 2020, the period reviewed in this Report.

The low percentage of elderly among Israel's population contributed to a lower number of COVID-19 deaths relative to the size of the population, but the mortality rate in Israel taking the age composition of the population into account was not low by comparison with advanced economies. (See Figure 1 in Box 7.1 of this Report.) However, differences in the elderly share of the population explain only a small part of the variance in mortality rates between the advanced economies (Figure 3).¹² The different mortality rates

¹¹ The Figure shows the number of verified cases. Similar results are obtained if we examine verified cases as a share of tests. The differences in the number of verified cases over time and between countries at any point in time are also influenced by the volume of tests.

¹² Three outlier countries were omitted from the Figure: Colombia and Mexico, in which the elderly share of the population is particularly low but the rate of COVID-19 mortality was high, and Japan, in which the rate of COVID-19 mortality was near zero despite the particularly high rate of the elderly among the population. Including these three countries would completely eliminate the explanatory capacity of the elderly population rate in this Figure ($R^2=0.002$). The mortality rates in the Figure relate only to 2020. Including the number of deaths until mid-February 2021 worsens Israel's position on the scale (due to the marked increase in mortality in Israel at the beginning of 2021), and changes the location of other countries as well. However, the correlation between the share of the population aged 65 and over and the mortality rate per million population remains weak.

Figure 2
Number of Infected Patients per Million Population, OECD Countries^a

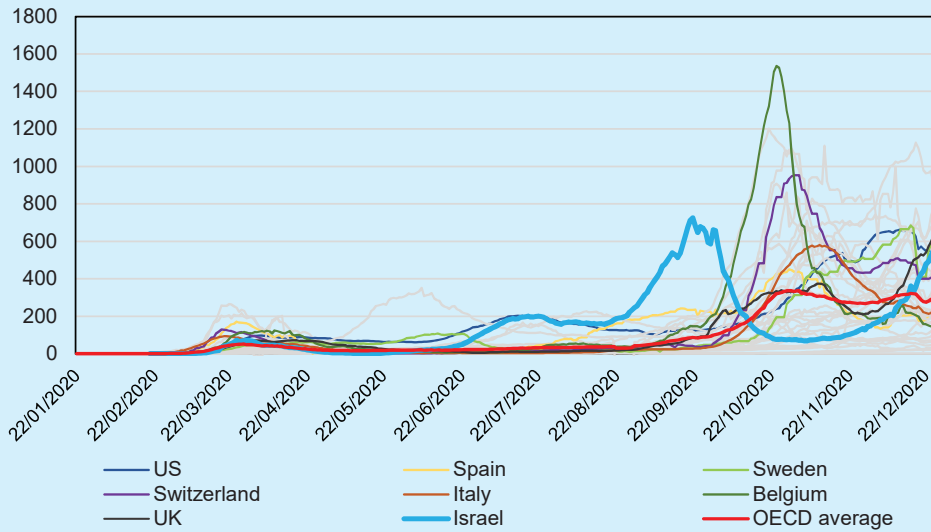
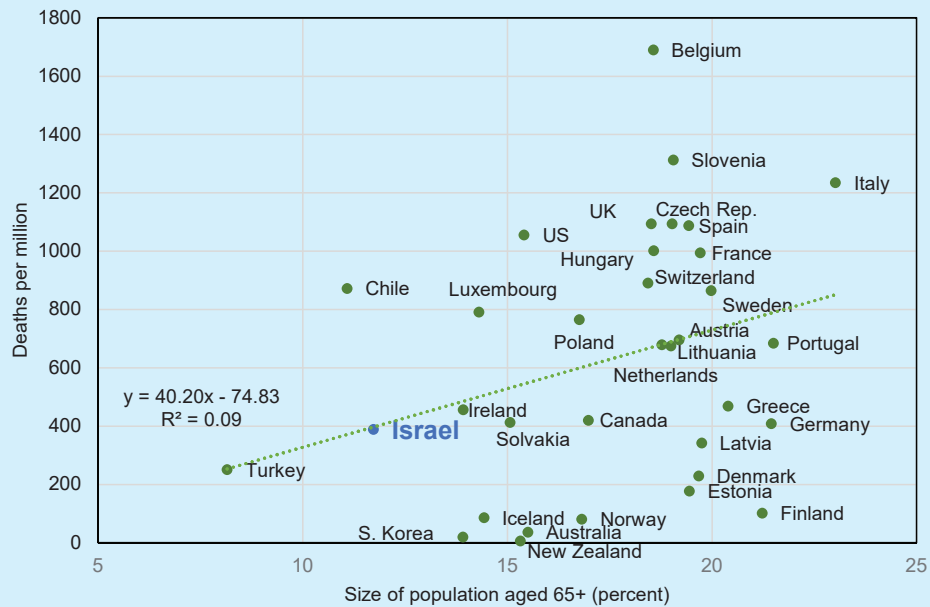


Figure 3
Deaths per Million in 2020, Compared with Population Aged 65+, OECD Countries^a

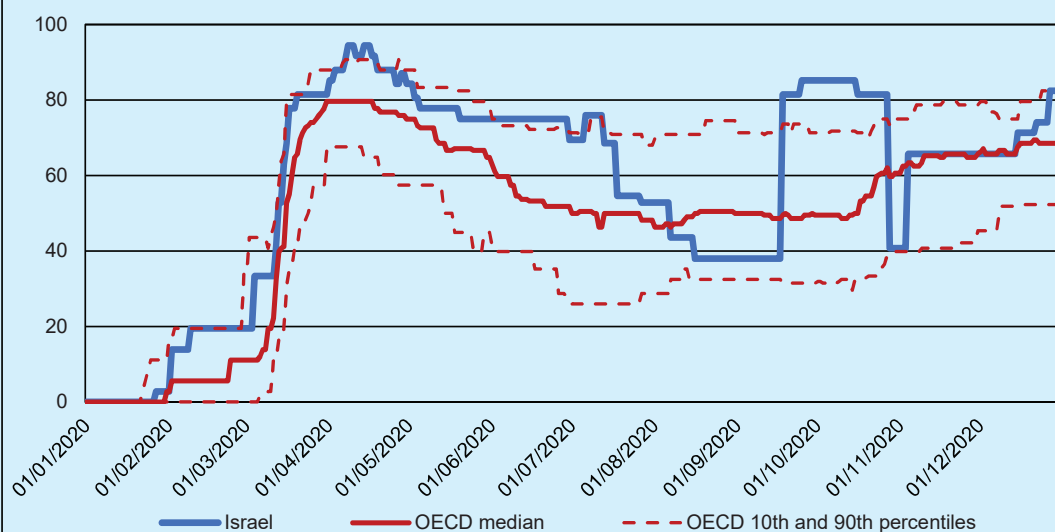


between countries may also be due to differences in government-imposed restrictions, the population's behavior, the capacity of the healthcare system and the quality of medical treatment, the distribution of morbidity over time (which affects the number of serious ill patients relative to the capacity of the healthcare system), differences in mutations and in attribution of the cause of death, and more.

Most countries imposed restrictions and lockdowns in an effort to contain the pandemic, but the strictness of those measures differed markedly between countries (Figure 4). In most countries, similar to Israel, the scope and strictness of the restrictions changed during the year, and the timing correlation between stricter measures and the pandemic waves is clear.¹³ At the end of the year and the beginning of 2021, many countries tightened or extended their lockdowns.

The lockdown in Israel during the first wave was among the most strict, and was among the earliest imposed. During the summer, the restrictions in Israel were less strict than in other countries. The second lockdown in Israel was also sudden and particularly strict, while the strictness of the restrictions following it (other than at the end of the year) were not anomalous by international comparison. Looking at the year as a whole, the restrictions in Israel were, on average, among the strictest imposed by OECD countries (Figure 1.1), and their possible contribution to the intensity of the decline in private consumption

Figure 4
Stringency of Activity Restrictions in Israel and the OECD (index)



SOURCE: Oxford COVID-19 Government Response Tracker.

¹³ The stringency index of the restrictions relates to 9 areas, including: the closure of workplaces, the closure of schools, restrictions on gatherings, the shutdown of public transit, restrictions on movement within the country, restrictions on travel to and from the country, and restrictions on leaving home. The strictness of the restrictions in each area at each point in time is classified into one of a number of ranks, and takes into account whether they were imposed in the entire country or only in part of it. The index presented in the Figure sums up the strictness of the restrictions in all areas. It reflects the restrictions that were imposed, but not the extent of enforcement or compliance. For further details see <https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-response-tracker#data>.

is discussed above. It should be noted that the index relates to the legal state of the restrictions, but not to the extent of enforcement or compliance. It is possible that in some countries, voluntary changes in the public's behavior constituted a partial alternative to tightening legal restrictions.¹⁴

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¹⁴ See footnote 4 in the Chapter regarding the importance of voluntary behavior in other countries.

4. THE COVID-19 CRISIS AND THE TWO CRISES THAT PRECEDED IT

During the past two decades, Israel has been hit by three powerful economic crises. This section compares the COVID-19 crisis to the two previous ones—the 2001–2003 crisis and the 2008–2009 crisis. The comparison provides a scale for the magnitude and nature of the current crisis, and indicates a number of insights concerning how to deal with crises. In particular, it highlights the effect of policy in the years prior to the crisis on the economy's ability to deal with it.

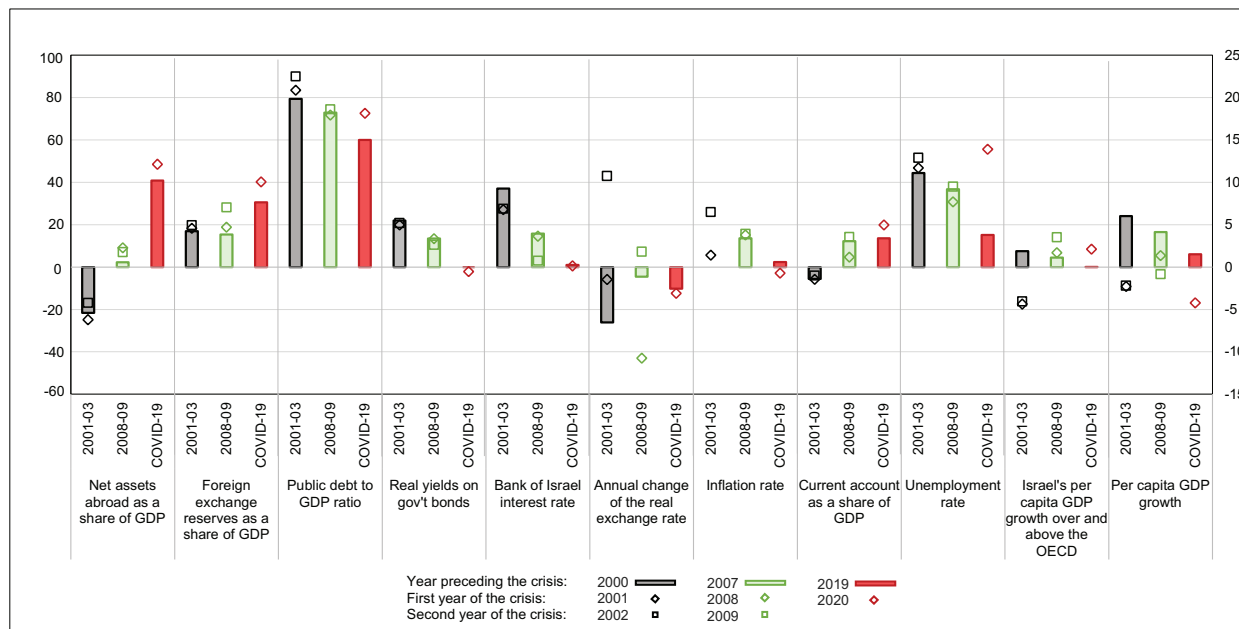
a. The starting point

From almost any possible aspect, Israel's situation prior to the COVID-19 crisis was better than it was prior to the two previous crises, and its situation prior to the 2001–2003 crisis was the worst (Figure 1.2).¹⁷ The differences in the fiscal situation, which are reflected partly in the debt to GDP ratio and in the yield on debt prior to the crisis, greatly affected the maneuvering space for fiscal policy's response. The foreign exchange reserves were particularly high prior to the most recent crisis, as a result of the Bank of Israel's sizeable purchases since 2008. Israel's transition from a deficit to

The state of the economy prior to the crisis was better than it was prior to the two previous crises.

¹⁷ The economy's performance in 2000 was anomalous and did not reflect the fundamental state of the economy. Per capita GDP increased by 1.7 percent in 1998 and by 0.9 percent in 1999. The public debt to GDP ratio, as measured at that time, was significantly higher than the data known today regarding that period. In this respect, the real-time fiscal situation was perceived as more serious than it appears in retrospect.

Figure 1.2
State of the Economy Prior to and During the Crisis: COVID-19 Crisis, 2008–09 Crisis, and 2001–03 Crisis^{1,2,3,4} (percent)



¹ Net assets, public debt, and foreign exchange reserves as a percentage of GDP - left scale. Other variables - right scale.

² The unemployment rate in 2020: The rate of unemployed plus temporary absentees for reasons having to do with the COVID-19 pandemic. Other years: The normal definition of unemployed (the percentage of those unemployed).

³ Net assets abroad: For 2000, the figure for 1998 is shown because of the temporarily anomalous level of this figure for 1999 and 2000.

⁴ The comparison with the OECD countries relates to the average of the 27 countries that belonged to the organization in 1999. The gap is in percentage points.

SOURCE: Based on Central Bureau of Statistics and OECD.

a significant surplus of assets over liabilities vis-à-vis abroad is prominent. However, the three crises were not balance of payments crises, and the state of the current account was reasonable even during the first crisis (despite the sharp depreciation of the shekel).

b. The intensity of the crisis

The COVID-19 crisis is the most intense of the three crises. The contraction of GDP in 2020 was greater than in any similar time frame during the previous crises, and the negative quarterly growth rates recorded in 2020 were unprecedented. The cumulative damage from the first year of the COVID-19 crisis (5 percent of GDP) is four times larger than the damage of the entire 2008–2009 crisis, and similar to the cumulative damage of two years during the 2001–2003 crisis (Table 1.3). Since the COVID-19 crisis has not yet come to an end and the pace of recovery from it remains unknown, it is too early to determine whether the cumulative damage from it will be greater or

Table 1.3**The cumulative damage during crises (percent of GDP)**

	Cumulative output gap in the first year of the crisis	Cumulative output gap in the first two years of the crisis	Cumulative output gap during the entire crisis
2001–2003 crisis	-2.4	-6.2	-12.1
2008–2009 crisis	-0.9	-1.3 ^a	-1.3
COVID-19 crisis	-5.3	n/a	n/a

Damage is defined as the differences between potential GDP each quarter and actual GDP. The cumulative damage is the total quarterly damage. The damage is attributed to the crisis only when the difference is negative, and is therefore accumulated with some lag—not from the time growth slows due to the crisis, but only from the time actual GDP is lower than potential GDP. In the same way, the crisis's damage accumulates when the growth rate increases during the exit from the crisis, as long as actual GDP is lower than potential.

^a The cumulative gap at the end of 7 quarters. In the eighth quarter, the gap was positive.

SOURCE: Bank of Israel.

less than what was caused by the prolonged crisis from 2001–2003 (12 percent of GDP). Even though the 2008–2009 crisis seems relatively slight in retrospect, at the time it was taking place there was concern that it would develop into a much worse crisis. Its lesser severity in retrospect was due to a large extent to the policy measures that were adopted.

c. The nature of the shock and its impact on the economy

The 2001–2003 crisis broke out as a result of the combination of a factor unique to Israel (the Second Intifadah) and a global economic factor (the slowdown focused on the crisis in the global high-tech industry).¹⁸ The 2008–2009 crisis was entirely due to a factor external to Israel—the Global Financial Crisis. The current crisis combines both the effect of the pandemic inside Israel and the effect of the global crisis generated by the pandemic. This difference in the root of the shock helps explain why the impact in Israel relative to abroad was the most serious during the first crisis and the most moderate during the second. The variance in the relative impact also contributed to differences in how the exchange rate developed, which had an effect on monetary policy.

The two previous crises were mainly crises of demand. The first was due to the impact to global demand for advanced exports and the impact of the Second Intifadah on domestic demand (consumption, tourism). The second was due to the impact on global demand for Israeli exports and lower private consumption at the outset of the crisis. In both crises, the impact to supply (reduction in Palestinian laborers and financing difficulties in the business sector in view of the financial crisis) was smaller than the decline in demand. The COVID-19 crisis is unique in terms of the combination of the impacts to demand and to supply, which is due to the government-imposed restrictions. This created dilemmas that had not arisen during the previous crises, regarding the adoption of policies to encourage demand.

The two previous crises were mainly crises of demand, while the COVID-19 crisis was a combination of impacts to demand and to supply, which was due to the restrictions imposed by the government.

¹⁸ The Second Gulf War (which began in March 2003) and the uncertainty in the months preceding it, added a further impact to the economy.

Similar to the current crisis, although obviously not to the same intensity, the 2001–2003 crisis featured a reduction of activity in the public space (due to the concern over terrorist attacks), which hampered private consumption and the retail industry above and beyond the decline due to the impact on income. The direct impact to activity was even more prominent in the incoming tourism field, which was seriously hampered due to the Second Intifadah and the September 11 attacks, and was almost completely shut down during the COVID-19 crisis.

The three crises emphasized the key role of exports in transmitting the effect of the global shock to the domestic economy, but the nature of this effect has not been uniform. The high weight of the advanced export industries worked to intensify the impact to the economy during the 2001–2003 crisis, and to reduce it during the COVID-19 crisis. The global slowdown in 2001 was focused on those industries, while Israeli advanced exports performed particularly well during the current crisis. The impact to exports during the 2008 crisis led the impact to the economy at the time, but this was due to the sharp decline in world trade rather than to the composition of Israeli exports.

The three crises also differed in terms of the labor market's response, which was also due to the nature of government intervention. During the first crisis, the labor market reacted with a sharp decline in real wages and an increase in unemployment. The government did not act to cushion the blow. On the contrary, during the crisis (although not at the beginning), it significantly lowered transfer payments, including unemployment benefits. During the second crisis, the elasticity of the labor market was prominent, helping to moderate the increase in unemployment: The number of work hours per employee was reduced, which made dismissals less necessary, and skilled workers were diverted to other industries.¹⁹ Government intervention in the labor market was miniscule, and the conditions for receiving unemployment benefits remained virtually unchanged during that crisis. The intensity and suddenness of the COVID-19 crisis led to an unprecedented increase in the broad unemployment rate. This increase, particularly the government's part in causing it through the restrictions it imposed, led the government to take unprecedented measures such as the decision to ensure unemployment benefits until June 2021. The high level of human capital helped to moderate the impact to employment during the last two crises. In 2008, it was the high level of mobility of skilled workers between industries that helped, and during the COVID-19 crisis it was their ability to work from home.

¹⁹ The crisis's impact on the advanced export industries, which are the most flexible in the labor market (Bank of Israel Annual Report for 2009, Chapter 5), contributed to this. The fact that the employment status of employees in the export industries is more stable than that of other business sector employees is evidence of this flexibility (not just specifically during a crisis), although employment is more volatile in these industries. This distinction is also valid if we take into account that the education levels of employees in these industries is higher (Bank of Israel Annual Report for 2013, Chapter 5).

d. The policy response

A comparison of the response of monetary and fiscal policies during the three crises shows how important the state of the economy and the policies adopted in the years prior to the crisis are for the ability to use policy tools to deal with it. The comparison also indicates additional factors that influence the weight of monetary policy compared with fiscal policy in the overall policy mix, as well as the importance of accumulated experience, which was prominent in monetary policy.

The state of the economy prior to the 2001–2003 crisis was the most unfavorable both in terms of the fiscal situation and because the central bank’s credibility had not yet been sufficiently built up and therefore limited its ability to lower the interest rate during the crisis. These impaired the ability to conduct a countercyclical policy, and at the height of that crisis, the Bank of Israel raised the interest rate and the government increased the tax burden and cut back on its expenditures. (The broad cut in transfer payment was also due to other considerations.) In the two following crises, the economy’s starting point was much more favorable, and enabled a vigorous policy response. However, the difference between them in the policy mix—the weights of monetary and fiscal policy—stood out.

The part of monetary policy stood out in the response to the second crisis—both in its intensity and in the type of tools used. This was due to the nature of the crisis, which first and foremost demanded action in the financial markets, which was also made possible due to the high level of credibility accumulated by the Bank of Israel in the years preceding the crisis, and because central banks around the world adopted similar policies. The use of fiscal tools was very limited, partly because of the lack of an approved State budget.

During the COVID-19 crisis, due to the nature of the real shock, fiscal policy’s weight in the policy response increased dramatically, as described above. Monetary policy also reacted strongly through a variety of tools, but the maneuvering space for lowering the interest rate was much narrower than in 2008 due to its proximity to zero. In view of the success of the monetary measures adopted to stabilize the financial markets at the beginning of the crisis, no further action was necessary in this area, in which monetary rather than fiscal policy plays a major role.

Monetary policy’s use of quantitative tools, which began with the 2008 crisis, continued during the COVID-19 crisis as well, at greater volumes, and the Bank of Israel even used additional quantitative tools. The sizeable foreign exchange purchases during both crises were due to the need to deal with appreciatory pressures, in contrast with the sharp depreciation during the 2001–2003 crisis.

During the first crisis, the procyclical nature of fiscal policy was prominent. In the second crisis, fiscal policy responded passively. The automatic stabilizers worked to lower tax revenue, but the government did not act to increase its expenditures. During the current crisis, there was a clear active and powerful response, which focused on increasing transfer payments and not on increasing public consumption or investment.

Comparing the crises emphasizes how important the state of the economy and the policy adopted in the years prior to the crisis were to the ability to adopt policy to deal with it.

5. WORKING FROM HOME DURING THE COVID-19 PERIOD AND ITS RAMIFICATIONS

Social distancing constraints caused an immense jump in remote activity in many fields, including learning, service provision, medicine, and shopping. This development helped deal with the crisis by lowering the chances of infection while also maintaining these activities, and it is expected to have broad implications even after the crisis is over. The significant increase in the volume of work from home is prominent in this context.

a. Global findings

The volume of working from home in many countries jumped during the crisis.

As technological possibilities have developed, working from home has expanded in recent years, and had reached considerable proportions in some countries even before the COVID-19 crisis.²⁰ The volume of working from home jumped during the crisis, with marked variance between the advanced economies, reaching 50–60 percent of employed persons in some of them.²¹ About half of salaried employees in European Union countries worked from home at least part of the time during the pandemic, and about one-third of them worked only from home. By way of comparison, in 2018, less than 5 percent of salaried employees in the European Union worked from home on a regular basis, and less than 10 percent worked from home every so often.²² The rate of those working from home in the US in April–May was estimated at 50 percent, compared with 15 percent before the crisis, and the rate of those working only from home in May was estimated at 35 percent, compared with 8 percent prior to the crisis.²³

The increase in work from home reduced the crisis's impact on economic activity and employment, and was perceived as an important means of lowering the chances of infection both at the work place and when using public transit in order to go to work. However, it also contributed to the increased variance in the intensity of the crisis's effect across industries and between types of workers, due to their differences in the ability to work from home. A number of studies regarding the US and Europe show that those with jobs that can be done less from home generally have lower education

²⁰ The volumes and characteristics of remote work in OECD countries in recent years are discussed in OECD (2020), "Productivity Gains from Teleworking in the Post COVID-19 Era: How Can Public Policies Make it Happen?"

²¹ V. Galasso and M. Foucault (2020). "Working During COVID-19: Cross-Country Evidence from Real-Time Survey Data", OECD Social, Employment, and Migration Working Papers, No. 246.

²² The rate of those working from home during the crisis, based on a survey conducted between May and July in 27 EU countries: Eurofund (2020). Living, Working, and COVID-19.

²³ E. Brynjolfsson, J. Horton, A. Ozimek, D. Rock, G. Sharma, and H. TuYe (2020). "COVID-19 and Remote Work: An Early Look at US Data", NBER Working Paper 27344; A. Bick, A. Blandin, and K. Mertens (2020). "Work From Home After the COVID-19 Outbreak", Federal Reserve Bank of Dallas Working Paper No. 2017.

levels and lower incomes.²⁴ The rate of those working from home among those with low education and wage levels was indeed lower during the crisis, and such workers suffered from a greater decline in employment, work hours, and income.²⁵ The fact that certain industries that were particularly hard-hit by social distancing restrictions (such as hospitality and food, and other services) are oriented toward workers with low education levels increased the impact on this group of workers. The relatively high housing density that is characteristic of those with lower education levels may also have had an impact on their ability to work from home.²⁶ The higher rates of working from home among young people served to reduce the impact on this age group.²⁷

b. Findings from Israel

In Israel as well the rate of those working from home due to the crisis jumped. In the last four months of the year, on average, about 22 percent of salaried employees worked from home. The rate was higher in October (26 percent), due to the second lockdown.²⁸

The volume of working from home during the crisis varies greatly across industries (Chapter 5, Table 5.2) and occupations²⁹, and is consistent with the differences in the volume of such work by education and income levels as described above. The increase in the rate of unemployed was greater in occupations where there is less possibility of working from home.³⁰ The public sector also transitioned to largely working from home during the crisis, but not during the first lockdown, when many public sector workers were required to take (paid) vacation.

Business surveys conducted by the Central Bureau of Statistics during the crisis illustrate the attitude toward working from home from the employers' viewpoint.

Employers' attitudes toward working from home vary widely across industries.

²⁴ J. Dingel and B. Neiman (2020). "How Many Jobs Can be Done At Home?" White Paper, BFI, University of Chicago; S. Mongey, L. Pilosoph, and A. Weinberg (2020). "Which Workers Bear the Burden of Social Distancing Policies?" NBER Working Paper 27085.

²⁵ See Dingel and Neiman (2020); Mongey et al. (2020); Bick et al. (2020); A. Adams-Prassl, T. Boneva, M. Golin, and C. Rauh (2020), "Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys", IZA Discussion Paper 13183. Mongey et al. (2020) find that the decline in employment among those without academic education in the US was 4 percentage points higher than among those with academic education. According to the Eurofund (2020) survey, 75 percent of those with academic education in the European Union worked from home in April, compared with 34 percent of those with high school education and 14 percent of those with lower education levels.

²⁶ Residential density had an impact on the rate of those working from home among those with lower education levels in Canada during the crisis. P. Baylis et al. (2020). "The Distribution of COVID-19 Related Risks", NBER Working Paper 27881.

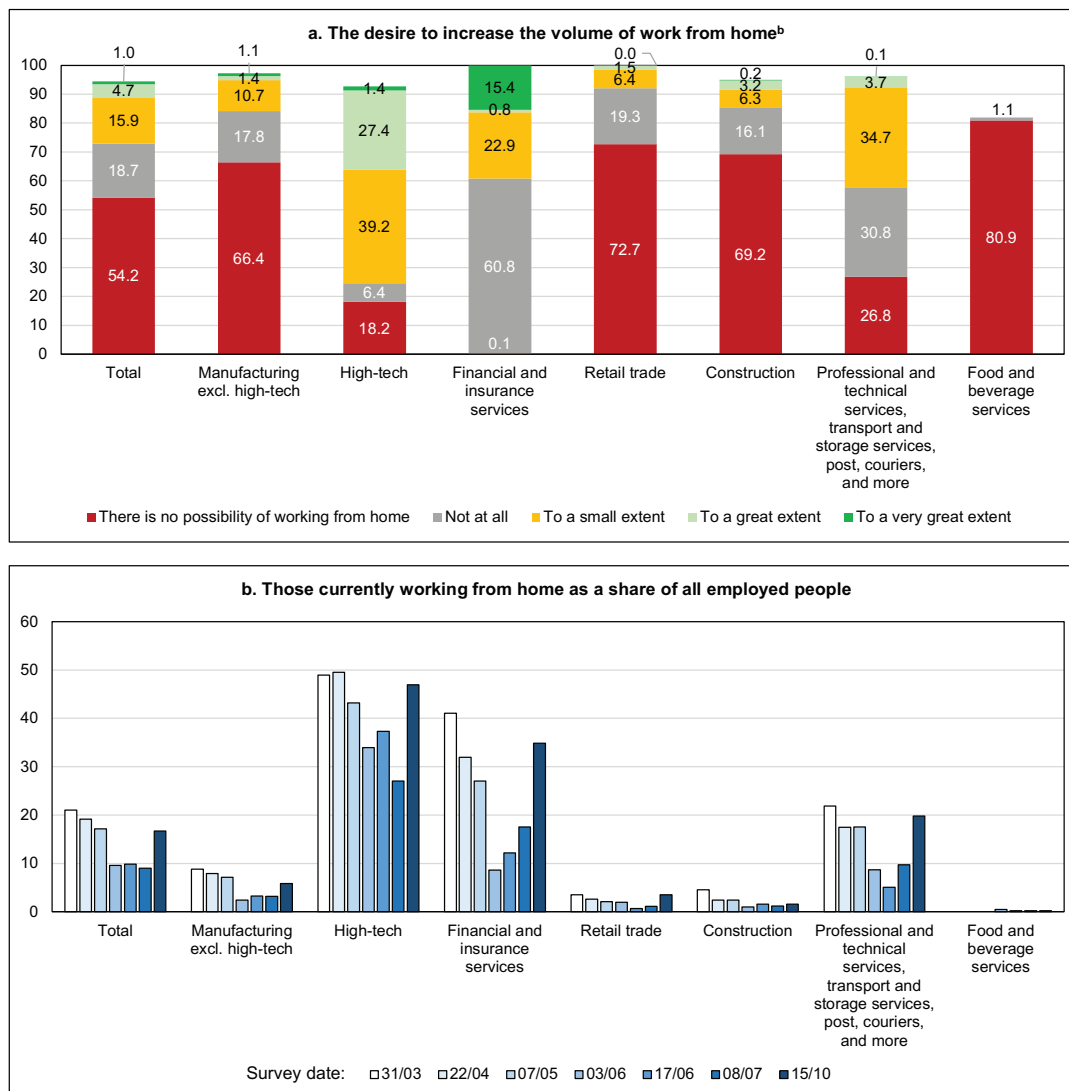
²⁷ Brynjolfsson et al. (2020); Eurofund (2020).

²⁸ The data are from the Central Bureau of Statistics monthly Labor Force Surveys. These surveys do not contain data on this rate prior to September.

²⁹ To illustrate: Forty-three percent of those with an academic occupation, 18 percent of general clerks and office workers, 6.5 percent of sales and service workers, and 2.3 percent of professional workers in manufacturing and construction worked from home in November.

³⁰ Bank of Israel (2020). "The COVID-19 Crisis and the Labor Market in Israel", *Selected Research and Policy Analysis Notes*.

Figure 1.3
Work-from-Home Rates and Employers' Attitudes Regarding Increasing Them^a



^a The survey included only business with five or more employee posts.

^b The text of the survey question: To what extent does your company want to increase the volume of work from home once the crisis is over compared with the situation prior to the crisis? The survey was conducted in January 2021. The percentages do not add up to 100 because some employers did not answer the question.

SOURCE: Central Bureau of Statistics, Survey of the State of Business During the Spread of the COVID-19 Pandemic.

About 57 percent of businesses noted that it is impossible for them to provide the option to work from home, and there is marked variance across industries (Figure 1.3a). Employers' responses regarding their desire to increase the scope of working from home following the crisis compared to the situation before the crisis show that at least some of such work during the crisis was perceived as a constraint that impaired the firm's activity. Once the crisis is over, they are expected to lower the amount of

work from home, but it will remain greater than it was before the crisis.³¹ In this matter as well, there is marked variance across industries. The high-tech industry has a prominently high rate of employers who intend to increase the volume of work from home following the crisis. This is consistent with the intensity of the industry's use of information technology, the characteristics of those working in the industry, and the industry's high level of performance during the crisis. However, even in this industry, only about one-third of employers think they will increase the volume of work from home to a large extent. The decline in the rate of work from home in the various industries during the summer (Figure 1.3b), when it was possible due to the easing of movement restrictions, may also hint at what is expected following the crisis. The high rate of those working from home in the financial services industries together with the sharp decline of this rate during the summer, is consistent with the employers' sweeping answers that working from home is possible together with the paucity of employers who intend to increase its volume following the crisis.

c. Working from home—a forward look to after the crisis

Alongside the advantages of working from home in dealing with the pandemic, the balance of its advantages and disadvantages in other aspects—from the standpoint of both the employee and the employer—will become clearer only in the future, and will influence the volume of work from home once the crisis is over.³² First, it is not clear that productivity when working from home is the same as it is at the workplace. The factors that may influence this include the effect of reduced commuting on the employee's performance, managers' ability to monitor the employee's performance at home, and the value of face-to-face interaction among employees. Working from home during the crisis still relies on social connections and other influences that were developed when the employees were at their workplaces, and these may deteriorate over time. In contrast, the acclimation to working from home and the accumulation of experience with it, on the part of both the employee and the employer, as well as technological improvements, may increase its productivity over time.

Other factors may influence the extent of support for working from home once the crisis is over, and employees' general satisfaction with this arrangement may change over time. For instance, going to the workplace may satisfy additional needs such as social interactions. Working from home may also have conflicting influences on the balance between work and leisure, and therefore on satisfaction with it. In a European survey conducted during the crisis, more than 75 percent of respondents noted that they would prefer to work from home at least occasionally even after the pandemic is over. Employees who worked only from home tended less to feel that they are doing

³¹ This question was asked in a survey conducted in January 2021. Therefore, the answers reflect the cumulative experience of employers with working from home over a relatively long period of the crisis.

³² For further discussion of the advantages and disadvantages of working from home, see: Knesset Research and Information Center (2020), "Working from Home in the Public and Private Sectors in view of the COVID-19 Crisis—The Situation in Israel and a Comparative View" (in Hebrew).

meaningful work, and tended more to feel isolated. Those working from home tended more to work at the expense of their free time, particularly if they have children at home.³³

Many parents in Israel worked from home for a significant part of the COVID-19 period while their children were home due to the closure of the education system or quarantine. This will require attention when inferring from this period in regard to working from home once the crisis is over, when the education system functions normally. While it has made it easier for parents to supervise their younger children in the absence of other frameworks, thereby apparently contributing to their willingness to work from home, the children's presence has made it difficult for parents to concentrate on their work. A survey conducted in Israel during the crisis showed that the rate of those reporting that they managed to work from home with the same efficiency as at their workplace was lower among parents, particularly those with young children.³⁴ In another survey, many parents noted that it is difficult to work from home when the children are present.³⁵

The volume of working from home once the crisis is over is expected to be greater than it was before the crisis, but smaller than during the crisis.

In view of the foregoing, it is reasonable to assume that the volume of work from home will increase significantly once the crisis is over, relative to the preceding period, although at least in the near future, it will be lower than the volume during the pandemic. It is also reasonable to assume that many employees will combine work from home with going to the workplace. The significant growth in the volume of work from home may have important implications for the economy and for the desired policy. Some of these implications, mainly concerning infrastructure, education, and the labor market, are discussed below.

Working from home should decrease commuting and thereby help lower transit congestion and the accompanying air pollution and greenhouse gas emissions. Since individuals do not internalize the contribution of reduced commuting to achieving these benefits (externalities), there will be room to consider government policies to rationally incentivize working from home.³⁶

The expansion of work from home, like online activity in other spheres, emphasizes the need for the government to act, whether through regulation or through the allocation of resources in appropriate cases, to ensure the proper level of communications infrastructure that is essential for this. In contrast, the reduction of commuting may support some adjustments to investment in transport infrastructure.

The expansion of work from home, emphasizes the importance of skills in working in a digital environment. It may even further widen the gaps between employees

³³ Eurofund (2020).

³⁴ Israel Democracy Institute (2020). "The COVID-19 Crisis: Working from Home" <https://www.idi.org.il/blogs/special-economic-survey/march-april-2020/31797> (in Hebrew).

³⁵ Bank of Israel (2020). "The School Vacation Structure in Israel and its Ramifications on the Labor Market", *Selected Research and Policy Analysis Notes*.

³⁶ See, for instance, Israel Association of Ecology and Environmental Science, in conjunction with the Ministry of Environmental Protection and the Ministry of Transportation, "Implementation of a Remote Work Policy in Israel—Conclusion and Insights of the Expert Committee", April 2020.

with higher and lower education levels, and there are those who view this as yet another stage in the contribution of technological changes of recent decades to the widening of such gaps. The crisis may exacerbate these processes by emphasizing the importance of information technology in maintaining business activity³⁷, and therefore may accelerate the adoption of such technologies, as well as the requirement for appropriate skills on the part of employees. It should be noted that the ability to work from home is also influenced by employees' personal qualities.

These insights have policy implications regarding the working-age population and regarding the education system. They emphasize the need to improve skills among employees through appropriate training programs, even more so since Israeli workers' skills in problem solving in a digital environment are low compared to other OECD countries, which impairs their productivity.³⁸ The expansion of working from home may also have a detrimental effect on the relative state of older workers, who tend less toward such work, and for whom it is especially important to provide appropriate training regarding skills in a digital environment. This also emphasizes the importance of narrowing the achievement gaps between students in Israel in general, and of strengthening digital environment skills and narrowing gaps in these skills in particular.

Remote working may help narrow the gaps between the center and periphery and improve access to high-income jobs in the center for residents of the periphery. This emphasizes the importance of high-quality communications infrastructure in the periphery, which may require more government involvement.

There are those who believe that expanded work from home may encourage suburbanization and negatively affect the major cities in the long term by reducing the advantage of living close to employment centers or the location of businesses there. It also may affect urban planning and moderate the demand for office space, and thereby also affect the municipal tax base of the local authorities.

The development of remote work may greatly expand Israelis' ability to work from home in Israel for foreign employers, and the ability of companies located in Israel to directly employ people living abroad. These developments may provide a new dimension to the globalization of labor markets, particularly affect highly educated and skilled workers, and increase the exposure of additional segments of the labor market to international competition.

The expansion of working from home emphasizes the importance of skills in working in a digital environment.

³⁷ During the crisis, employment in the United States suffered less of an impact in areas where firms used information technology at greater intensity. However, these technologies' role in maintaining activity was due not only to their contribution to remote work, but also to their contribution to online shopping and more. The increased adoption of such technologies by firms lowered the impact to employment of all types of workers other than those with low education levels, which shows the role of such technologies in widening gaps between types of workers. See N. Pierri and Y. Timmer (2020), "IT Shields: Technology Adoption and Economic Resilience During the COVID-19 Pandemic", IMF Working Paper WP/20/208.

³⁸ Bank of Israel (2016). "Basic Skills of Workers in Israel and Industrial Productivity", *Fiscal Survey and Selected Research Analyses* (August).

6. CHALLENGES UPON EMERGING FROM THE CRISIS

Significantly restraining the pandemic in Israel, which depends on the vaccination rate in the population and on the vaccination withstanding the mutations of the virus, will enable the economy to recover. Insofar as the pandemic is brought under control around the world, the global economy will also be able to recover, which will further accelerate economic activity in Israel.

As Israel emerges from the crisis, fiscal policy will need to be adjusted in order to ensure that the public debt to GDP crisis is on a downward path.

As Israel emerges from the crisis, fiscal policy will need to make significant adjustments to ensure that the public debt to GDP ratio is on a downward path over time. The contraction of the special expenditures having to do with the crisis will not suffice. The large and expanding structural deficit prior to the crisis shows that additional adjustments will be necessary. In view of the relatively low level of civilian public expenditure (excluding interest) and the reductions in tax rates in the years preceding the crisis, as well as for the purpose of financing the debt that ballooned during the crisis, it may become necessary in the future to increase tax rates. Moreover, there must be a return to conducting fiscal policy within formalized frameworks and in accordance with long-term fiscal rules in order to maintain its credibility over time and support the processes of setting priorities. Monetary policy will also need to adjust the volume of the special tools it is using during the crisis and maintain the trust in its ability to achieve its targets.

Many of the programs that were operated during the crisis gave preference to assistance and compensation considerations over efficiency and incentives. When exiting the crisis, it will be important to halt these programs or reduce their scope and to adjust their characteristics so that they don't hamper the incentive to work and so that they don't perpetuate the existence of inefficient businesses. It is important to adjust the pace of rolling back the programs to the pace of the recovery due to the damage involved in speeding up or delaying the roll-back. Mechanisms of this type have already been embedded in some of the programs, such as conditioning unemployment benefits on the unemployment rate and conditioning assistance to businesses on the rate of decline in their revenue. There is also a need for adjustments to policy measures intended to ease financing terms.

The unemployment rate is expected to drop as the economy recovers, but it may remain much higher than what it was prior to the crisis. The factors that may contribute to this include the streamlining of businesses during the crisis, changes in the structure of the economy, and the difficulties of those unemployed for a long period of time in reintegrating into the labor market. Policies to improve human capital and adjust it to changes in the economy will help in dealing with these ramifications.

The crisis emphasized the lack of a broad economic safety net that can be activated rapidly in a crisis, and the lack of a proper data infrastructure necessary for the efficient design of focused assistance programs. Dealing with these weaknesses is important for improving preparedness for a future crisis.

Once the crisis is over, it will again become necessary to focus on the fundamental problems in the economy, chiefly low productivity, disparities in productivity between segments of the population and sectors of the economy, and inequality. Some of these problems were exacerbated during the crisis—for instance due to the differential effect on more highly educated workers and those with lower education and wage levels, and in view of the importance of education and skills for online activity, particularly work from home. These all underscore the importance of improving the education system and reducing educational gaps. Increasing investment in the economy, particularly in infrastructure, and chiefly in public transit infrastructure, is also necessary in order to increase productivity in Israel. The crisis has also emphasized the importance of communications infrastructure. To all this, we must add the continuing challenge of maintaining a pace of building starts that is in line with the needs of the population over time.

Once the crisis is over, it will again become necessary to focus on the fundamental problems of the economy, chiefly low productivity, disparities in productivity between segments of the population and sectors of the economy, and inequality.

Chapter 2

Aggregate Activity: GDP and Employment

- The COVID-19 pandemic and the response to it led to a major economic crisis, which was reflected in a 2.5-percent drop in GDP and a 9.4-percent drop in the number of employees actually working.
- In order to deal with the pandemic, the government imposed lockdowns and restrictions, most of them in “close-proximity” industries (in which the industry’s routine activity involves close and prolonged contact, the presence of a crowd in a closed space, or the crossing of borders). The effect of these restrictions produced a record 9.5-percent decline in private consumption and a drop of about 90 percent in incoming tourism beginning in March.
- The economic fallout was primarily concentrated in close-proximity industries, while activity in other industries recovered almost completely after the first lockdown.
- Businesses’ response to the restrictions included the furloughing of many workers. The broad unemployment rate was 16 percent on average during 2020, and at its peak during the first lockdown, it reached 37 percent of the labor force.
- Most of the furloughed workers were employed in close-proximity industries, which are characterized by low average productivity. As a result, the drop in GDP was less than the decline in total work hours and less than the decline in the number of employees who continued to work. Dealing with the employment situation is one of the main short-term challenges awaiting a new government.
- Although the decline in private consumption in Israel was larger than the average decline in the OECD, the overall decline in Israel’s GDP was less than in most of the OECD countries. This outcome can primarily be attributed to the continuing rapid growth in Israel’s exports of high-tech services and its low level of dependency on incoming tourism.
- The government acted to mitigate the effects of the crisis by providing unprecedented support for the unemployed and for businesses, alongside additional assistance to households. It is estimated that the additional public expenditure due to the response to the crisis prevented the loss of between 1.9 and 2.6 percent of GDP in 2020. Thus, private disposable income, i.e. after taxes and transfer payments, increased by 3.9 percent in spite of the crisis.
- The drop in consumption and the rise in disposable income increased private savings. This apparently reflected forced saving as a result of the restrictions imposed on economic activity, together with a low rate of substitution between the services provided by restricted industries and other types of consumption. This is an indication of the ability to return to a high level of activity when the economy reopens completely.
- The increase in private savings was larger than the drop in public savings, such that national savings increased, thus supporting the expansion of the current account surplus to 5 percent of national income. The closing of the skies contributed \$2.6 billion to the current account surplus, a result of the surplus of tourism imports over tourism exports prior to the crisis.

- High-tech output grew by 6 percent in 2020, although the growth was not uniform across high-tech companies or industries, and which helped to mitigate the crisis's effect on the economy. The revenue and exports of the high-tech sector rose continuously during the crisis this year, while the sector's employment declined from the beginning of the crisis until August and then subsequently recovered to its precrisis level.
- Activity in the construction industry slowed from March onward. However, the fact that the industry was exempted from the lockdowns helped to mitigate the effect. In 2020, residential building starts declined by about 3.5 percent, and the number of building completions fell by about 8 percent, while nonresidential building starts fell by about 13 percent relative to 2019. The number of building approvals granted by the district councils also declined, as did the marketing of land by the Israel Land Authority.

1. MAIN DEVELOPMENTS

The COVID-19 crisis, which began in February, led to an unprecedented decline of 2.5 percent in GDP.

Aggregate economic activity in Israel was primarily influenced by the effects of the COVID-19 pandemic and the response to it, as was the case in the rest of the world. As a result of the pandemic, GDP fell this year by an unprecedented 2.5 percent (a 4.2 percent decline in per capita GDP), which implies a loss of output of about 5.5 percent relative to potential growth, i.e. about NIS 77 billion.

The government imposed three lockdowns and numerous restrictions that had a major impact on close-proximity industries.

This is a unique crisis, since it began with an exogenous shock, namely the appearance of the COVID-19 virus in China and its rapid spread to the rest of the world, including Israel, at the end of February. The onset of the pandemic led to an economic crisis, primarily due to the policy response, whose goal was to limit the spread of the pandemic. The policy response began with the closing of the skies to incoming tourism and a prohibition of activity involving the congregating of people, and peaked during three lockdowns of about six weeks duration each (March–April, September–October and December 2020–January 2021), during which many businesses were required to close or to curtail their activity. Israelis were called on to remain at home, there were restrictions on congregating, and the educational system discontinued activity involving physical proximity for all age groups and switched instead to distance learning. The closure of the education system, in addition to the direct effect on learning, forced many parents to be absent from work in order to care for their young children.

The economic impact of the first lockdown was substantial, while that of subsequent lockdowns was less so.

Most of the restrictions were focused on businesses in industries involving physical proximity and congregating or the crossing of borders (herein: “close-proximity industries”, such as hotels and food services, entertainment and leisure, transportation, education, and nonessential commerce). These industries primarily involve private consumption, which dropped by 9.5 percent this year, and incoming tourism, which ceased almost entirely beginning with the onset of the pandemic. During the first lockdown, activity in the public sector was also cut back significantly, and during the first two lockdowns, the entry of Palestinian workers into Israel was restricted, which

created a difficult situation for the construction industry (see Box 2.3). Most of the adverse effect on the economy can therefore be attributed to the restrictions imposed on business activity in the close-proximity industries, which were aimed at mitigating the health effects of the pandemic. The various restrictions on activity in general, and the lockdowns in particular, lowered the income, consumption, and welfare of many individuals. It is not possible to determine what the scope of the economic cost—or the cost in terms of health—of the COVID-19 pandemic would have been if that policy had not been adopted. It is reasonable to assume that in such a situation the health outcome would have been much worse, but we do not know how the public would have adjusted its economic behavior to the health crisis, with respect to either the character of the response or its intensity.

The lockdowns had a massive economic impact over the course of the year. The first lockdown went into effect without any preparations having been made, and as a result there was massive economic fallout. In contrast, the subsequent lockdowns were imposed after businesses and the government had made arrangements to operate remotely (where that was possible), so their economic effects were more limited. It is important to note that some of the activity that involves congregating was also restricted between the lockdowns and rules were imposed on the manner in which businesses could remain open (the “purple standard”), such that the macroeconomy was unable to operate at its normal pace.

Alongside the clear direct negative effects on businesses in the close-proximity industries, the effect on other businesses varied. Some industries experienced an increase in activity as a result of substitution, since consumers redirected their expenditure from activity that had been restricted (leisure and restaurants) to the purchase of goods whose sale was permitted (such as food and electrical appliances). Other industries experienced a drop in demand, whether because they supply intermediate goods and services to industries that were directly affected or because they were affected by changes in consumption habits as a result of the crisis. This was seen in particular in the consumption of gasoline.

The restrictions on routine business activity, alongside the drop in demand experienced by some businesses because individuals preferred to remain at home or because their income had fallen, led to a direct and significant drop in business income. As a result, when the first lockdown was imposed, many businesses cut their current expenses, particularly labor costs for workers whose employment was no longer possible or necessary. In order to prevent massive layoffs and to calm the markets, the government loosened the conditions of eligibility for unemployment benefits, including for furloughed workers. Indeed, the broad unemployment rate (which includes workers who were dismissed or furloughed as a result of the pandemic, as well as jobseekers who have despaired of finding a job) skyrocketed. The average annual broad unemployment rate was about 16 percent, and at its peak it reached more than 37 percent. The average wage of furloughed workers was lower than that of employees who continued to work, since the industries that were most affected by the crisis are characterized by relatively low wages. As a result, a gap formed between

The effect of the crisis and the restrictions varied across industries.

The broad unemployment rate jumped to 16 percent, and at its peak reached 37 percent. Most of those who were furloughed were employed in relatively low-paying jobs.

The COVID-19 crisis created a high level of uncertainty with respect to health, which also led to high economic uncertainty.

The government and the Bank of Israel took unprecedented measures to mitigate the effect of the crisis.

Israel's GDP declined less than that of other OECD countries, although Israel's consumption fell more.

At the beginning of 2020, the economy was in a healthy situation, apart from the large structural deficit and low labor productivity.

In response to the pandemic, the government restricted activity, particularly in the close-proximity industries.

the sharp drop in total work hours (of about 9 percent) and the more moderate drop in GDP. Although this was reflected in a technical increase in labor productivity and the average wage, in actuality the wage of workers who continued working rose by a negligible amount at most. (For further details, see Chapter 5 in this report.)

The beginning of the COVID-19 pandemic was characterized by a high level of health uncertainty. This was reflected in the TA35 index, like other leading indices worldwide, which fell by 30 percent between mid-February and mid-March 2020. In March 2020, the VIX index rose to its highest level since the 2008–9 crisis, and its Israeli counterpart—the VTA35—also rose sharply.¹ Uncertainty moderated after the first wave, when the capital markets stabilized and began to rise. Nonetheless, the rest of 2020 was characterized by high uncertainty, due to fluctuations in infection rates, the lockdowns, and the uncertainty as to when a safe and effective vaccine or treatment would be found. This was accompanied by continuing government instability during the crisis. It is possible that, above and beyond the saving that was forced on the public as a result of the restrictions and the lockdowns, the fears regarding the situation, and the resulting precautionary saving also contributed to the drop in private consumption.

In order to mitigate the effect of the crisis, the government and the Bank of Israel made unprecedented use of policy tools. The government increased support for the unemployed and businesses that were adversely affected, partly in order to prevent a spillover to the rest of the economy. It initiated numerous programs to support various industries in the economy, including the establishment of funds to provide partially guaranteed loans to businesses; the easing of conditions of eligibility for unemployment benefits, including for furloughed workers; grants to the self-employed; compensation to businesses; universal grants to all citizens; a worker retention grant; and additions to the healthcare budget.² The Bank of Israel lowered the interest rate, which was already near zero prior to the crisis, and employed a number of unconventional and broad policy tools. The commercial banks were given access to low-interest loans in order to provide credit to small businesses; the Bank of Israel purchased government and corporate bonds in order to maintain the interest rates in the market at a relatively low level; it purchased foreign currency in order to limit the appreciation of the shekel; it instituted a loan repayment deferral program; it adopted measures to increase credit in the economy; and more. (For a full survey of actions taken by the Bank of Israel to deal with the COVID-19 crisis, see Chapter 3 of this report.)

Overall, the crisis's adverse effect on Israel's GDP was more moderate than in most of the OECD countries, while the drop in private consumption was steeper in Israel (Table 2.1; Figure 2.1). These differences indicate that the restrictions on economic activity in Israel, which mainly affected private consumption, were more stringent than in other countries. Moreover, the fact that the difference in the drop in consumption was substantially larger than the difference in the intensity of the restrictions indicates

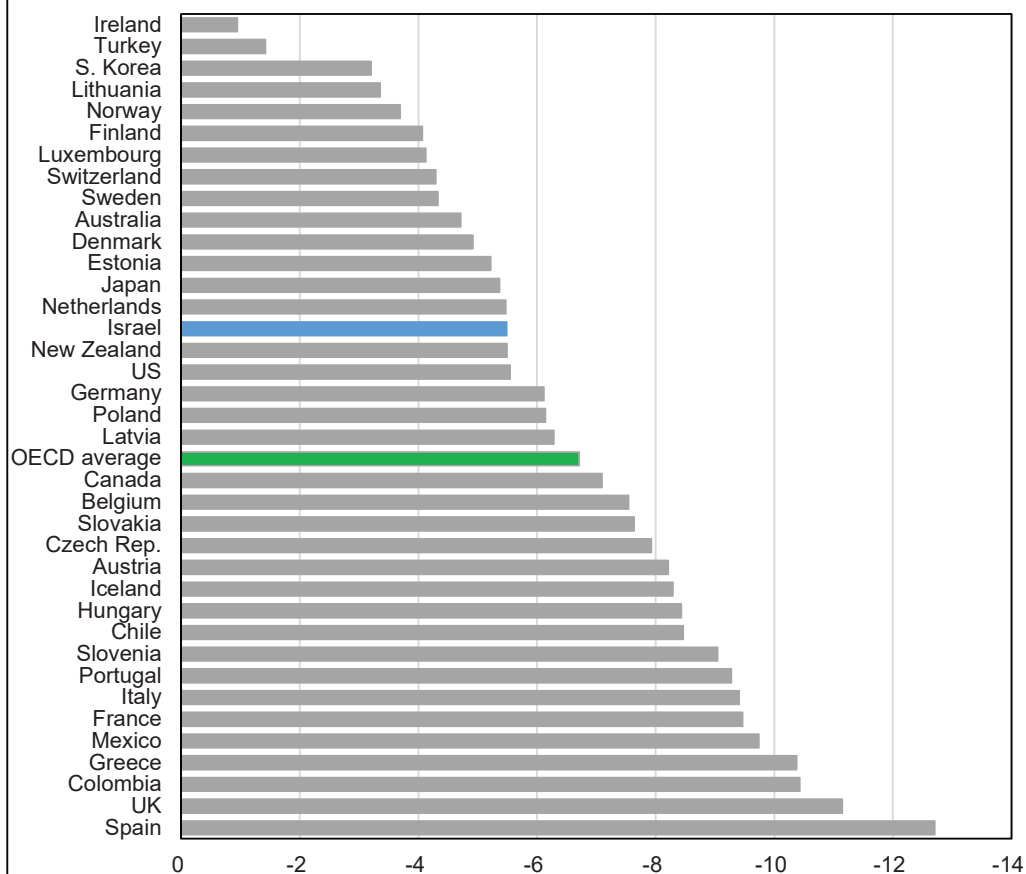
¹ The VIX Index measures the standard deviation implicit in options on the S&P 500 share index, and is used as a measure of volatility in the equity market. As a result, it is also called the “fear index”. The VTA35 index plays the same role for the TA35 Index.

² For further details on the government measures, see Chapters 5, 6, and 7.

that the response of individuals to the crisis and to the restrictions was stronger in Israel than in other OECD countries, and the harm to their welfare was therefore greater.

In contrast, a number of developments worked this year to mitigate the intensity of the effect on Israel's GDP, although their contribution to consumption, and therefore to the welfare of individuals, in Israel in the short term was much more limited. The main development was the continued growth of the high-tech industry in Israel (Box 2.2). This industry, which is primarily based on the export of business services, has been leading Israel's growth during the past decade. This year again its exports grew,

Figure 2.1
Reduction in Growth in OECD Countries in 2020: Difference Between Actual Growth and Precrisis Growth Forecast (percentage points)*



* 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. Growth in 2020: Israel—Central Bureau of Statistics; OECD countries—based on quarterly data for all 4 quarters in 2020.

SOURCE: Based on OECD.

such that total services exports (excluding tourism) increased by 11.0 percent this year. This increase during the pandemic is explained by increased technological needs worldwide as a result of the pandemic, and the ability of high-tech workers to work from home to a large extent. Furthermore, the Israeli economy's relatively low exposure to incoming tourism reduced the effect of this industry's global freeze on Israel. These structural factors, together with the drop in the global price of oil, the fact that prior to the crisis outgoing tourism was greater than incoming tourism, and the drop in demand for vehicles, continued to improve Israel's current account surplus this year (Tables 2.1 and 2.2).

Table 2.1
Selected indicators of economic activity, 1995–2020

	(annual change, percent)					
	1995– 2015	2016	2017	2018	2019	2020
GDP	3.7	3.8	3.6	3.5	3.4	-2.5
GDP of OECD countries ^a	2.2	1.8	2.6	2.3	1.6	-5.5
Per capita GDP in Israel	1.6	1.8	1.6	1.5	1.5	-4.2
Per capita GDP in OECD countries ^a	1.5	1.2	2.0	1.7	1.1	-6.1
Per capita private consumption in Israel		4.2	1.4	1.7	1.7	-11.1
Per capita private consumption in OECD countries ^a		1.2	1.8	2.2	1.6	-6.0
Exports excluding diamonds and startups	6.4	-0.8	5.5	6.0	5.5	1.9
Domestic uses	3.3	6.6	4.2	3.3	3.5	-4.7
Unemployment rate (ages 15+, level)	7.8	4.8	4.2	4.0	3.8	4.4
Broad unemployment rate (ages 15+, level) ^b						15.7
Real wage per employee post	0.9	2.8	2.8	2.7	2.0	7.8
Current account surplus (percent of GDP)	0.9	3.7	2.9	2.7	3.4	5.0
Real effective exchange rate ^c	0.0 ^d	-1.5	-4.4	2.1	-2.5	-3.1

^a Weighted average according to each country's GDP. Data for 2020 are based on estimates.

^b Including the unemployed, those temporarily absent for reasons having to do with COVID-19 (including furloughs), nonparticipants who were dismissed from March 2020 onward, and nonparticipants who stopped working for other reasons or did not work in the past and are interested in working now, but have not looked for work in the past month due to reasons having to do with COVID-19. This figure was defined in 2020 due to the COVID-19 crisis, and is therefore not reported for previous years.

^c An increase means depreciation.

^d The figure relates to the years 1999–2014.

SOURCE: Based on Central Bureau of Statistics, OECD, and IMF.

Table 2.2
Global economic developments, 1995–2020^a

	(annual change, percent)						
	1995– 2014	2015	2016	2017	2018	2019	2020 ^b
Advanced economies							
GDP	2.4	2.3	1.8	2.6	2.3	1.6	-5.5
Trade ^c	5.6	4.3	2.2	4.7	3.0	1.4	-10.1
US							
GDP	2.8	2.9	1.6	2.4	2.9	2.4	-3.4
Eurozone							
GDP	1.6	2.1	1.9	2.5	1.9	1.2	-7.2
Developing economies							
GDP	6.1	4.3	4.6	4.8	4.5	3.9	-2.4
Trade ^c	8.4	0.3	2.4	7.4	4.5	1.3	-8.9
World trade	6.4	2.8	2.4	5.8	4.0	1.0	-9.6

^a The averages of the various aggregates are weighted averages. Data for 2020 are based on estimates.

^b Data for 2020 are based on estimates.

^c Simple average of the rates of change of exports and imports of goods and services.

SOURCE: Based on OECD and IMF.

a. Background conditions

During January–February 2020, the Israeli economy was strong and the positive trends in most of the economic variables continued. The unemployment rate was low, the economy was growing at a stable rate, there was a surplus in the current account, there was a high level of foreign exchange reserves, and the public debt to GDP ratio was low. This situation was accompanied by two long-term structural problems: The structural deficit had been growing for several years and had reached a relatively high level; and labor productivity was at a low level and was growing at a slow rate. At the beginning of March 2020, there was uncertainty in the political situation, due to the fact that Israel was going through its third election within a year and the government had been operating without an approved budget since the beginning of 2020.

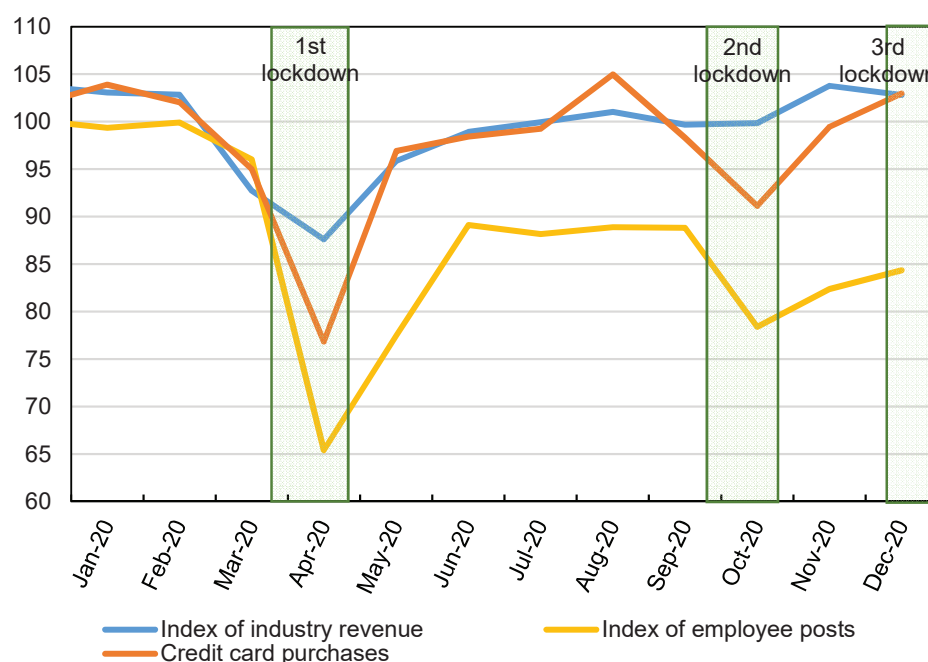
b. Economic trends during the COVID-19 crisis in 2020

At the end of February 2020, the COVID-19 pandemic reached Israel. From that point onward, economic activity was conducted under the shadow of the virus, and it mainly reacted to and coped with that situation (Figure 2.2). In an effort to prevent the spread of the virus in Israel, the government imposed increasingly stringent restrictions on

activity in the economy, particularly activity that involves congregating. The main industries in which most of the activity requires physical proximity between people or a crossing of borders are defined here as “close-proximity” industries. These include transportation, restaurants, hotels, art and leisure, travel agencies, and parts of the trade industry that were defined as nonessential. These industries were restricted to a large extent, or even closed, for most of 2020, as part of the government’s response to COVID-19, and were therefore the most adversely affected (Table 2.3). Box 2.1 in this Chapter surveys the impact on these industries and their main characteristics.

Figure 2.2

Indices of Economic Development in 2020 (index, 2019 average=100)



SOURCE: Based on Central Bureau of Statistics and Shva.

The first lockdown led to a broad contraction in economic activity, which fell to 80 percent of its normal level.

In mid-March, the government imposed a full lockdown, which required a complete closure of close-proximity industries and was applied in other industries according to how essential they are to the economy and their ability to maintain social distancing. As a result of the suddenness of the pandemic’s outbreak, together with the lack of preparation for and the inability of most businesses in the economy to work remotely, many businesses curtailed their activities.

In March, there were also sharp declines in the capital markets. In March and April, the government sent most public sector workers on forced vacation at the expense

Table 2.3
Change in output of principal industries at factor prices, 1995–2020

		(annual change, percent) ^a					
	Share of total output (2020) ^b	1995–2015	2016	2017	2018	2019	2020
Total		3.7	3.0	3.9	3.4	3.3	-2.1
Public services	16.4	2.1	3.5	2.7	2.6	1.4	-3.3
Business sector	70.2	4.1	2.9	4.3	3.6	3.8	-2.7
Manufacturing, mining and quarrying	11.8	2.7	-4.4	5.1	2.6	2.5	2.5
Trade and hospitality and food services	11.7	5.4	3.9	5.1	2.8	2.8	-5.1
Business services	17.4	4.0	3.9	4.2	3.1	5.9	-3.2
Construction	6.3	1.5	7.2	6.5	5.8	3.8	-4.2
Transport and Storage	3.1	4.4	4.2	6.3	4.7	1.1	-20.5
Information and communications	11.2	8.4	7.0	2.0	6.2	6.0	6.1
Agriculture	1.2	2.3	5.2	1.9	-3.7	1.9	-2.0
Water and Electricity	1.7	3.9	7.0	-1.5	5.2	1.8	-4.6
Education, Health and Art	5.7	2.9	3.1	3.1	3.3	2.1	-9.1

^a The data on change in the total GDP differ from the data in Tables 2.1, 2.4, and 2.7 because they are taken from industry data and not uses data.

^b In addition to output of public services and business sector product that appear in the table, total output also includes housing services output. The weight is calculated based on current price data.

SOURCE: Based on Central Bureau of Statistics.

of their vacation days, and thus significantly reduced the number of public sector employees actually working.³ At the beginning of that lockdown, the first economic support program was announced as part of the response to the crisis. The conditions of eligibility for unemployment benefits were also relaxed for furloughed workers. During this lockdown, about one million workers were furloughed, and the broad unemployment rate⁴ shot up to 36.4 percent. Since the close-proximity industries that were closed or severely restricted employed a large number of workers with relatively low productivity, the effect on employment was greater than the effect on economic activity. For all of these reasons, the level of activity in the economy (in terms of output) in April (as a monthly average) declined to 80 percent of its normal level,

³ For further details, see Chapter 6, Section 2e in this Report.

⁴ The broad unemployment rate includes the unemployed (the “narrow” unemployment rate); employees who are temporarily absent as a result of COVID-19 (including furloughed employees); nonparticipants in the workforce since being laid off in March 2020; and nonparticipants in the workforce who stopped working for other reasons or have not worked in the past and are interested in working now, but have not searched for a job during the past month because of COVID-19. The rate is calculated as a percentage of participants in the labor market plus the two nonparticipating groups that are counted as unemployed according to this definition.

The second lockdown had less of an effect than the first, although it too was significant.

primarily due to the sharp drop in private consumption. However, the first lockdown achieved its goal of lowering the rate of infection.⁵

During the second lockdown (mid-September to mid-October), the formal restrictions were more stringent, but the adverse effect on economic activity was smaller than during the first lockdown. In October, on average, economic activity (in terms of output) declined to 93.5 percent of its normal level, and the broad rate of unemployment increased to 20.3 percent. There are several possible explanations for the more moderate consequences of the second lockdown than of the first, most of which are related to the learning curve during the first wave and the internalization of the effects of COVID-19. The main factor is the adaptation of businesses to operating during the COVID-19 period. According to Round 7 (July 2020) of the Central Bureau of Statistics flash business surveys, which started from the onset of COVID-19, many businesses in all industries made significant changes to the methods of production and supply of their goods and services. These changes included a transition to delivery services (in the trade and food and beverage industries), increased ability to work from home (in high-tech and financial services), a transition to working in shifts (in manufacturing, wholesale trade, and in the food and beverages industry), and a shift to online sales (in high-tech and retail trade).⁶ According to Round 9 of the survey, which was carried out in October, about 10 percent of companies had launched a site or app or had expanded their activity on the Internet. This proportion reached 24 percent in trade and 13 percent in food services.⁷ Other possible reasons for the less adverse effect of the second lockdown include that it coincided with the High Holidays (which are longer than the Passover holiday that occurred during the first lockdown); individuals had adjusted to working and consuming during the COVID-19 period; and weaker compliance and enforcement. Alongside the smaller economic effect, the second lockdown did still lower the rate of infection, although less so than the first lockdown.⁸

Between the lockdowns, economic activity strengthened and unemployment declined.

Between the lockdowns, there was an upturn in economic activity and unemployment declined. Between the first and second lockdowns (May to September) economic activity grew as restrictions were relaxed, and the expansion continued until the imposition of the second lockdown. On April 19th, there was an easing of restrictions imposed in the first lockdown, and during April and May the government expanded its economic support programs. The process of exiting the lockdown continued until mid-June, when the scope of the restrictions reached a minimum (i.e. the opening of businesses according to the “purple standard” and restrictions on large events and on tourism). During the summer months (June–August) the level of economic

⁵ From mid-May to the end of June, there were 17 days on which no one died of COVID-19.

⁶ Central Bureau of Statistics, Results of the Survey of Businesses During the Spread of the COVID-19 Virus (Round 7), July 14, 2020.

⁷ Central Bureau of Statistics, Results of the Survey of Businesses During the Spread of the COVID-19 Virus (Round 9), October 10, 2020.

⁸ For further details on the trend in the rate of infection over the course of the year, see Chapter 1 and Box 7.1 in this Report.

activity rose to 95.5 percent of its normal level, and the broad rate of unemployment dropped to 11.7 percent after about 85 percent of furloughed workers returned to work. Economic activity remained relatively strong even when morbidity started to rise in July and only a few of the restrictions were reimposed, implying that the fear of infection was not the factor that was responsible for most of the contraction in private consumption. In addition, following the exit from the second lockdown, which began in mid-October, the level of economic activity gradually rose (to an average of 97 percent in November–December) and the broad unemployment rate again dropped (to 13.2 percent). The restrictions were not completely lifted and infection again began to rise in mid-November. In mid-December it was decided to impose a third lockdown.

The recovery in economic activity to relatively high levels between the lockdowns (although not as high as during normal times) was made possible by a number of factors. First, the lifting of restrictions made it possible for businesses to open and for the public to return to their normal consumption habits, in view of the fact that only a few households and businesses had collapsed, partly thanks to the government support and the financial exemptions. Second, some of the uncertainty that had existed at the beginning of the pandemic had dissipated, and it appears that the public's fear of infection had lessened, such that they hardly refrained from activities that were now permitted. At the same time, it should be recalled that these data reflect the average activity of the public, and it is important to note the variance within the data: Some businesses and households experienced economic distress during the summer months as well.

Government support and the drop in uncertainty revived a significant portion of the economy between the lockdowns.

Box 2.1

INDUSTRIES THAT WERE SEVERELY AFFECTED BY THE COVID-19 PANDEMIC

The COVID-19 pandemic affected all industries in the economy to a varying degree. This Box identifies the industries that were most seriously severely impacted and compares their featurescharacteristics to those of the remaining industries in the economy.

a. Differential Varying effects

The negative impact on economic activity was concentrated in a small group of “proximity industries”—industries whose ordinary activity involves a high potential of infection during the pandemic, due, for example, to border crossings, prolonged proximity between people, or the presence of many people in an enclosed space. Another feature of these industries is that only few of their employees are able to work from home.¹ The impact of the crisis was concentrated in this group of industries in other developed economies

¹ The exception is the education industry, although the definition of its employees (mainly teachers) as employees capable of working from home, is contested. This estimate is based on the occupational profiles classification in Dingel and Neiman (2020), and the transition to the Israeli classification is based on Bank of Israel (2021a). The transition to industry-based classifications is based on the distribution of occupations listed in each industry in the Labor Force Survey.

as well, despite differences in industry composition, epidemiological policies, labor markets, and the timing and intensity of the pandemic's effects in each economy.² Table 1 presents the distribution of negative effects on the various industries in Israel compared to the corresponding period of the previous year.

Proximity industries absorbed the vast majority of the economic disruption, which did not spill over to other industries due to the economy's limited dependency on them.³ A notable exception is the education industry. While this industry does not maintain input-output ties with other industries, a suspension of its operations adversely affects the work capabilities labor inputs of employees in other industries.⁴ Prior to the pandemic, the proximity industries accounted for approximately 30 percent of the labor market and approximately 19 percent of GDP, similar to their average weights in the OCED countries. The adverse impact on this group of industries was more strongly reflected in industry revenues than in employment levels, in contrast to the other principal industries where the pandemic's main observed impact was on employment rates.

Table 1: Collection of Industry Data

Industry	Name	Proximity industry	Rate of workers who can work from home	Employment in the rest of the economy that depends on this industry ^a	Industry weight - 2019		Rate of change, March–December 2020 compared with the same period last year	
					in GDP	in Employment	Revenue	Employment
A	Agriculture, forestry and fishing		10.9	0.67	1.2	1.7	-0.6	-4.1
B_C	Manufacturing, mining and quarrying		27.0	0.49	12.0	9.7	3.7	-6.5
D_E	Electricity and water		37.4	0.66	1.9	0.7	3.2	-0.2
F	Construction		14.9	0.74	6.5	7.4	5.7	-13.7
G	Wholesale and retail trade, repair of motor vehicles and motorcycles		26.0	0.30	9.9	10.7	1.9	-15.2
H	Transportation and storage, postal and courier services	ü	20.1	0.29	3.7	4.2	-19.4	-14.9
I	Accommodation and food services	ü	5.7	0.31	2.6	4.7	-43.2	-49.1
J	Information and communications		87.9	0.29	9.9	5.4	4.1	-3.6
K	Financial and insurance services		83.0	0.39	4.3	3.1	1.8	-7.6
L	Real estate activities		85.2	0.94	2.5	0.8	-7.8	-12.9
M	Professional, scientific and technical services		79.7	0.16	7.4	7.3	2.4	-10.0
N	Administrative and support services	ü	33.1	0.13	3.8	4.5	-22.9	-16.0
P	Education	ü	74.9	0.09	6.4	11.9	-23.2	-6.0
Q	Human health and social work services		14.4	0.17	6.0	10.7	-1.4	-1.1
R	Arts, entertainment and recreation ^b	ü	36.4	0.34	1.3	2.0	-35.6	-43.0
S	Other services ^b	ü	30.7	0.43	1.3	2.6	-35.6	-20.5
	All industries that were harmed		43.6	0.20	19.1	29.9	-27.4	-19.6
	The entire economy, excluding the industries that were harmed		38.7	0.38	61.7	57.5	2.6	-7.7
	All industries in the analysis ^c		40.7	0.32	80.8	87.4	-1.7	-12.3

^a Bank of Israel calculations based on the methodology of Brand and Wallach (2020). The results reported for the industry groups are the average weighted by the number of employees in the industries in each group.

^b It is not possible to separate the revenue data of these industries. In addition, the GDP figure for them is grouped together with the "households as employers" industry. The weight in GDP that appears was obtained by dividing the figure for 2019 by the ratio between them, as appears in the 2017 Survey of Economic Industries.

^c The following industries were omitted from the analysis: Local administration, public administration and defense; compulsory social security; households as employers; undifferentiated goods- and services-producing activities of households for own use; and activities of extra-territorial organizations and bodies. Revenue data relate to the business sector only, and salaried positions relate to public and private sector workers in each industry.

SOURCE: Based on Central Bureau of Statistics and Ministry of Finance.

² For additional information on an international comparison of Israel's labor market policy, see Chapter 5.

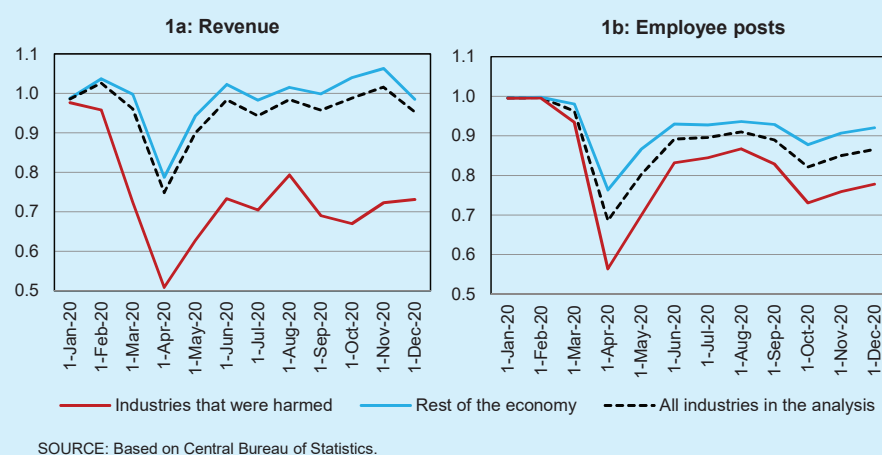
³ The calculation of the number of jobs in the rest of the economy that depend on employment in this each industry is based on the methodology used by Brand and Weller (2020), and the production chains in the economy as reflected in the input-output tables. The most recent tables represent 2006 data, and similar calculations based on more recent data might have had different outcomes for several industries.

⁴ For additional information see Chapter 7.

The path of activity over the year also reveals differences in the patterns of economic activity in the proximity and nonproximity other industries. Figure 1 presents the level of economic activity in the proximity industries group and in the other principal industries in terms of employment and revenue. The figure shows the ratio between actual and expected economic activity for each month of 2020, such that a value of “1” in a given month represents economic activity that reached similar to expected levels.⁵ Excluding the adverse impact of the two lockdown periods, the pandemic had a stable and relatively limited impact on the nonproximity industries: close to zero effect in terms of revenue and a decline of approximately 7 percent in terms of employment. The adverse impact on activity in the proximity industries on the eve of the second lockdown was about 21 percent in terms of revenue and about 14 percent in terms of employment. The impact during the first lockdown was more severe than the impact during the second lockdown (49 percent in terms of revenue and 44 percent in terms of employment at the height of the first lockdown; 33 percent in terms of revenue and 27 percent in terms of employment during the second lockdown). Apparently the small proportion of proximity industry employees able to work from home undermines a full recovery in these industries as long as there is a significant risk of infection.

There are only a few sources that offer data at a resolution that allows us to identify the variance between impacts within the principal industries. The most comprehensive source of such data is labor inputs (total number of labor hours) by industry based on the Labor Force Survey.⁶ Table 2 shows a decline in labor inputs in the proximity industries during the pandemic, at the highest possible degree of detail. These figures show that even within the proximity industries, the main impact is concentrated in subindustries whose activity involves an significant epidemiological risk.

Figure 1
Activity in the Major Industries, 2020



⁵ The expected level of a figure in a given month is defined as the activity level in the corresponding month in 2019 multiplied by the mean growth rate between 2015 and 2019.

⁶ Additional indications, such as credit card expenditures and revenue in subindustries, are not available for all industries. They are not presented but they show a similar picture to the picture based on labor inputs. Subindustry revenue reveals a relatively uniform level of adverse impacts in the education industry. It was not possible to decompose the data regarding the arts, entertainment, and leisure industries.

A different pattern is observed in the manufacturing industry. Economic activity in this industry⁷ was not severely affected compared with the rest of the economy, but a significant negative impact was observed in several subindustries. Adverse effects increased as technological intensity diminished, and was not necessarily correlated with epidemiological risk (Table 3).

Table 2: Variance of the impact within the proximity industries: Rate of change in labor input by industry, March–December 2020 compared with the same period last year

Main industry	Code	Industry name	Rate of change
H	49-53	Total industry: Transportation and storage, postal and courier services	-19.7
H	49-51	Land transport and transport via pipelines, water transport, and air transport	-26.5
H	52-53	Warehousing and support services for transportation; postal and courier services	-5.4
I	55-56	Total industry: Accommodation and food services	-50.9
I	55	Accommodation services	-52.9
I	56	Food and beverage services	-48.3
N	77-82	Total industry: Administrative and support services	-21.5
N	77-79	Rental and leasing services, employment services, and travel agency and tour operator services	-59.2
N	80-82	Security and investigation services, services to buildings and landscape activities, and office administrative and support and other business support services	-9.1
P	85	Education	-11.4
R	90-93	Arts, entertainment and recreation	-36.8
S	94-96	Other services	-22.8
		Proximity industries	-23.1
		Rest of the economy	-6.8
		All industries in the analysis	-12.2

SOURCE: Based on the Central Bureau of Statistics Labor Force Survey.

Table 3: Industrial Production Index and selected components by technological intensity, rate of change, March–December 2020 compared with the same period last year

	High technology	Mixed-high technology	Mixed-low technology	Low technology
Industrial Production Index	6.3	0.8	-2.5	-3.2
Employee posts	-2.6	-5.4	-8.0	-13.0
Actual work hours	-0.3	-5.3	-9.2	-13.5
Total wage	-1.9	-3.2	-5.6	-9.1

SOURCE: Central Bureau of Statistics.

⁷ Similar figures exist for the mining and quarrying industry, which does not reflect a significant adverse impact. Activity in this industry is volatile, and is mainly affected by progress in the natural gas projects. An examination of the annual rate of change in this industry is therefore unreliable.

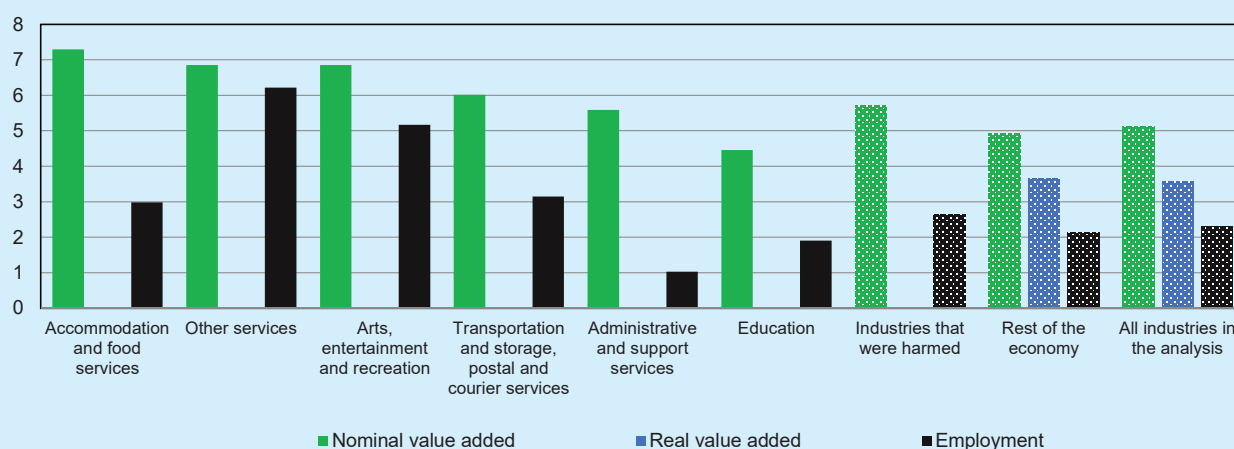
b. Features Characteristics of the affected industries

As noted above, the common feature shared by all affected industries is the epidemiological factor, although the severely affected industries also share several other commonalities: Most of these industries are nontradable industries in which productivity, as defined by wages, are low (Table 4), and their share of the labor market exceeds their share of GDP (Table 1). In these industries, the number of work hours per employee is also low compared with the rest of the economy, which indicates that employees have relatively loose connections to their workplace in these industries.⁸

Another shared feature of the group of severely affected industries is low liquidity ratios.⁹ Prior to the crisis, companies in these industries had a relatively limited ability to absorb a temporary economic impact. Moreover, evidence shows that in each industry, the most severely affected were small and medium-sized companies and companies with low liquidity.¹⁰ This highlights the importance of the safety net that was quickly made available to these firms during the crisis and was designed to support their survivability.

Another feature of the most hard-hit industries is a high rate of growth in the years preceding the crisis. Figure 2 illustrates that both the added value in current prices and the employment rates in these industries grew more rapidly than in the rest of the economy, and the added value in fixed prices grew at pace with the rest of the economy. This means that in recent years, the proximity industries accounted for a greater

Figure 2
Employment and Value Added by Industry, Average Annual Rate of Change, 2015–19



SOURCE: Based on Central Bureau of Statistics.

⁸ For elaboration on the features of employees in affected industries, see Chapter 5.

⁹ Liquidity ratios are defined as the ratio between a firm's total assets and its total liabilities. The current ratio refers to total current assets and liabilities (up to 12 months). The quick ratio was also examined, although not presented. The quick ratio is defined similarly to the current ratio, with the difference that the asset side does not include inventory. There was no difference in the findings.

¹⁰ For additional information on the variance in adverse effects across firms as a function of their financial position, and the effect of the disruption on credit risks, see Bank of Israel (2021b).

share of GDP and employment, but productivity in these industries grew more slowly than the rest of the economy. It therefore appears that the industries that were most severely affected by the COVID-19 crisis were not those that were otherwise experiencing a decline: On the contrary, despite the low growth rate in productivity, the demand for their products, and especially demand for employees, increased and contributed to economic growth. This picture highlights the importance of maintaining the survivability of these industries during a crisis through governmental aid, rather than a passive policy grounded in the “creative destruction” argument.¹¹

Table 4: Characteristics of the impacted industries

	Return on labor as a percent of value added - 2017	Average wage per employee post (NIS thousand) - 2019	Work hours per employer - 2019	Current ratio ^a - 2017
H Transportation and storage, postal and courier services	0.63	11.75	39.7	1.00
I Accommodation and food services	0.74	5.17	33.5	0.64
N Administrative and support services	0.69	6.19	35.5	0.86
P Education	0.81	8.31	27.0	0.98
R Arts, entertainment and recreation	0.56	6.48	30.3	0.97
S Other services	0.89	5.84	30.8	0.92
All industries that were harmed	0.69	7.36	33.3	0.89
The entire economy, excluding the industries that were harmed	0.58	12.74	38.0	1.29
All industries in the analysis	0.60	10.59	36.5	1.15

^a The figure that appears for industry groups is the simple average of the industries in the group.

SOURCE: Based on Central Bureau of Statistics.

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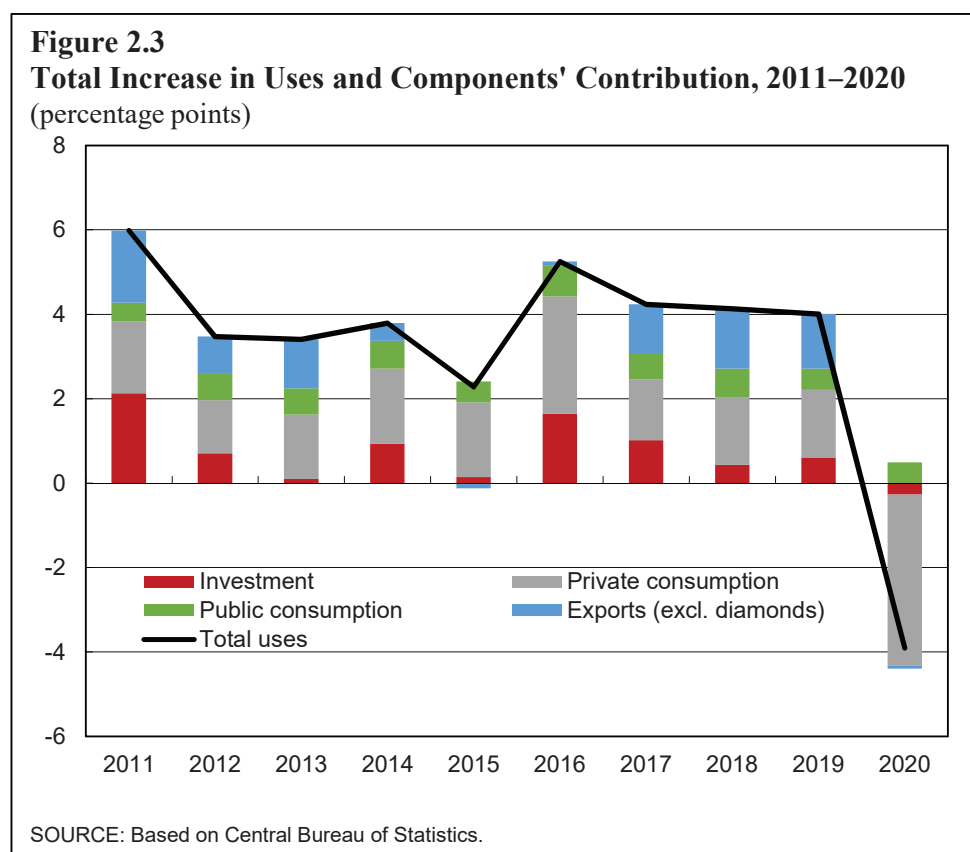
¹¹ Nonetheless, in specific cases economic growth trends in several subindustries may change as a result of changes in taste that occurred during the pandemic.

2. AGGREGATE ACTIVITY

a. The composition of uses

The COVID-19 crisis led to an unprecedented 3.6-percent drop in uses in 2020.⁹ The main component of the decline was private consumption, while investment also declined to some extent (Figure 2.3). In contrast, exports remained almost unchanged, and public consumption increased as a result of the increase in public purchasing. The differences between the various uses in this respect reflect the crisis's various channels of influence: the severe restrictions on close-proximity industries, which are primarily involved in private consumption, versus the more moderate restrictions on industries in other areas, such as investment (for example, residential construction) and exports (primarily of the high-tech industries, which were only slightly constrained by the crisis), while demand for their products had risen.

The crisis led to an unprecedented drop in uses, particularly private consumption.



⁹ Since the measurement of data began in 1950. The second largest drop was 3.2 percent in 2009.

The rate of decline in private consumption (9.5 percent) was the largest since 1950.

1. Private consumption

Private consumption declined this year by 9.5 percent, or NIS 71 billion, the largest annual decline since the recording of data began in 1950. This is the use that was most affected by the crisis, since the main restrictions on activity, and in particular the lockdowns, were imposed on activities that are part of private consumption (Table 2.4).

Table 2.4
Sources and uses, 1995–2020

	(annual change, percent)					
	1995–2015	2016	2017	2018	2019	2020
GDP	3.7	3.8	3.6	3.5	3.4	-2.5
Imports (excluding ships, aircraft, diamonds, and defense imports)	4.5	9.2	6.8	5.1	5.0	-8.0
Domestic uses	3.3	6.6	4.2	3.3	3.5	-4.7
<i>of which</i> : Private consumption	4.1	6.4	3.3	3.6	3.8	-9.5
Fixed capital formation (excluding ships and aircraft)	2.4	12.0	4.9	3.9	2.7	-3.6
Investment in inventory (excluding diamonds and startups, percent of GDP)	0.3	0.1	0.4	0.0	0.0	0.1
Output of startup companies	13.3	20.3	-3.6	13.9	29.1	12.2
Public consumption (excluding defense imports)	2.2	4.2	4.4	4.3	2.7	2.9
Exports (excluding diamonds and startups)	6.4	-0.8	5.5	6.0	5.5	1.9

SOURCE: Based on Central Bureau of Statistics.

Most of the components of private consumption declined, but this was particularly the case in the consumption of services (nonhousing), which fell by 26.7 percent or NIS 69.7 billion (about 5 percent of GDP). The fall in the consumption of services was concentrated in the close-proximity industries that were most adversely affected by the restrictions (Figure 2.4). Thus, for example, the consumption of transportation services fell by about 52 percent, which contributed 1.8 percentage points to the drop in uses in 2020 (out of a decline of 3.6 percent). A significant component of the drop in the consumption of transportation services was the decline in the purchase of airline tickets by Israelis due to the closing of the skies.¹⁰ The consumption of durable and semidurable goods also fell in 2020, and within that decline the main components were vehicle purchases (which fell by 15 percent) and the consumption of goods such as furniture, clothing and footwear, which for the most part are purchased physically in stores.

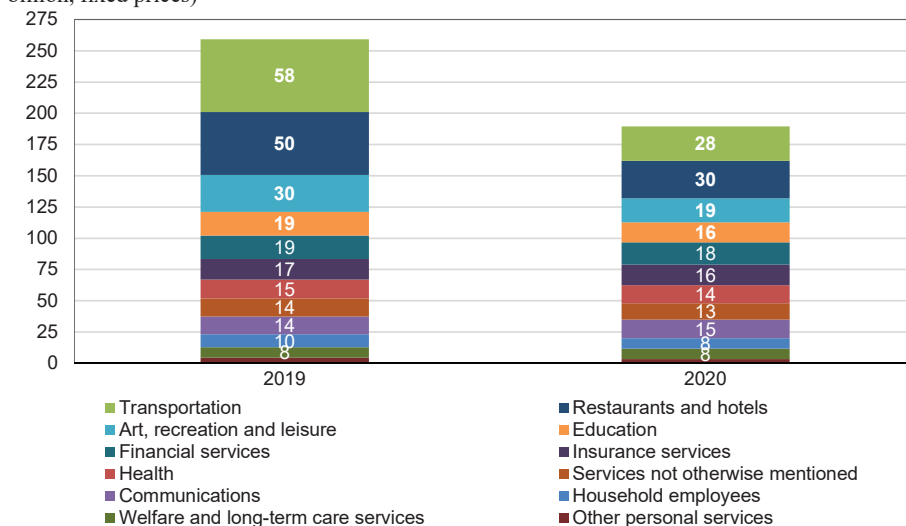
The crisis led to restrictions on international movement and the closing of the skies by many countries. Thus, travel abroad by Israelis dropped drastically, as did incoming tourism. The drop in travel abroad reduced private consumption directly by way of the decrease in the consumption of tourism services abroad and in the purchase of airline tickets. Most of these declines were in imported services, such that the crisis had less of an effect on domestic demand than it did on private consumption. The data on overnight stays in tourist hotels in Israel show that in August—when

¹⁰ About NIS 9 billion of the NIS 31 billion decline in the consumption of transportation services was the result of the decline in the purchase of airline tickets due to the cessation of outgoing tourism. Of this amount, about NIS 6.5 billion was imports of airline tickets, i.e. the purchase of tickets by Israelis from companies abroad, and about NIS 2.5 billion represented the decline in the purchase of airline tickets by Israelis from Israeli companies.

The main decline in private consumption was in the consumption of services excluding housing—NIS 70 billion.

The crisis led to a closing of the skies and a halt in tourism. The restrictions reduced private consumption.

Figure 2.4
Distribution of Private Consumption of Services (excl. Housing), 2019–2020 (NIS
 billion, fixed prices)



SOURCE: Based on Central Bureau of Statistics.

the restrictions on activity were minimal—the number of overnight stays by Israelis at tourist hotels in Israel was 3.0 percent lower than in August the previous year. This decline is evidence that there was almost no substitution between tourism consumption abroad and domestic tourism in Israel, even though at the national level the rate of hotel occupancy was particularly low due to the absence of tourists. Israelis therefore did not fill the vacuum left by foreign tourists, apparently because most of the unoccupied rooms were not located in the main domestic tourism locations, but rather in the large cities (Tel Aviv, Jerusalem, and Haifa), which are not viewed by Israelis as a substitute for travel abroad.¹¹ In contrast, the occupancy rates of hotels in Eilat, which is the main domestic tourism center in the summer, were similar to their peak rates of demand during August in previous years, and it is therefore reasonable to assume that the supply constraint is what affected the level of substitution of Israeli tourism to Eilat. The finding of only a small decline in total overnight stays by Israelis during a month in which morbidity rates had already risen above previous peaks makes clear that at that stage in the year it was not the fear of infection, but rather the restrictions on activity in the various industries, that was the main factor behind the drop in consumption.

It appears that a small proportion of the savings from the reduced consumption of services provided by businesses that were restricted or closed was channeled to the consumption of goods that are at least partial substitutes for consumption outside the home. The consumption of electrical and other appliances increased by 11.8 percent,

¹¹ It may be that there were some unoccupied rooms in tourism centers such as the Dead Sea and Tiberias.

and consumption of manufactured products for current consumption¹² rose 11 percent in 2020 (NIS 2.3 billion and NIS 3.4 billion, respectively). The only service where consumption increased was communications, which increased by 3.0 percent. This was unsurprising in view of the social distancing and remote consumption that resulted of the crisis.¹³

The finding that the drop in the private consumption of durables did not lead to a decline in consumption (unlike in a normal economic crisis) implies that the drop in private consumption during the COVID-19 crisis was primarily the result of the response—whether voluntary or coerced—to the government restrictions on the consumption of services produced by the close-proximity industries, rather than income and wealth effects on consumption. When saving is precautionary or due a drop in income, it usually begins with individuals refraining from large purchases of durable goods, which in general are easy to defer. Essentially, gross private income rose this year by 3.9 percent, while the value of the public's asset portfolio was not adversely affected (Table 2.5). About 40 percent of the increase in income was the result of a major expansion of transfer payments to households, and this apparently helped most low-income earners to maintain their consumption of basic goods and services, such as food and beverages, the consumption of which actually grew this year by more than the rate of population growth. It is important to mention that these data reflect averages, and that the income and consumption of many individuals were adversely affected by the crisis and there are those who suffered severe economic distress. (For a comprehensive description of the effect of the crisis on households, see Chapter 7 in this Report.)

Additional support for the argument that the restrictions had a decisive effect can be seen in Figure 2.5, which presents credit card transactions in Israel, according to physical presence when the transaction was carried out. In-person transactions dropped at the start of the crisis, then recovered partially and then dropped again, in step with the lockdowns and the restrictions that constrained economic activity. In contrast, remote transactions declined during the first lockdown, when uncertainty was at a particularly high level, and then returned to the precrisis trend. Remote transactions during the crisis were influenced by the restrictions on activity (a drop in transactions that were carried out remotely in close-proximity industries, such as hotel reservations) as well as by substitution (a shift from in-person transactions to remote transactions in the same industry and/or a partial shift of consumption between industries). However, overall they were similar to their precrisis trends.

An examination of the data on Israelis' purchases abroad paints a similar picture. Figure 2.6 presents annual online purchases abroad by Israelis in transactions of up to

¹² These goods include pharmaceuticals, household maintenance products, beauty products, gardening products, and pet products, among others.

¹³ The data for communication services consumption do not reflect an increase in usage by existing consumers. Rather, they primarily reflect the number of subscribers to the various services. Therefore, it can be concluded that growth in communication services consumption in terms of usage was even greater this year.

It was the restrictions that led to a reduction in private consumption.

Total disposable income increased but many individuals who were adversely affected by the crisis had to reduce their consumption.

In-person credit card purchases declined while remote purchases returned to their trend, evidence of the restrictions' effect.

Purchases abroad increased, but by much less than the decline in in-person purchases.

Public consumption increased in 2020, primarily due to government purchasing.

Table 2.5**Domestic demand: Background conditions and main indicators of its development, 1995–2020**

	(annual change, percent)					
	1995–2015	2016	2017	2018	2019	2020
Private consumption	4.1	6.4	3.3	3.6	3.8	-9.5
<i>of which</i> : Current consumption	3.9	5.2	4.4	3.5	3.7	-9.7
Durable goods consumption	5.6	19.5	-7.9	5.6	4.9	-5.9
Gross private disposable income from all sources	3.7	5.6	2.6	6.6	5.1	3.9
Current transfer payments to the public	4.2	4.6	9.0	3.2	5.5	16.1
Credit to households	7.1 ^b	6.7	5.5	5.1	5.2	4.4
<i>of which</i> : Nonhousing credit	3.5 ^b	6.1	4.8	3.0	2.3	-1.9
Real 1-year interest rate (government bonds, level)	2.8	-0.1	-0.1	-0.8	-0.8	0.1
Value of the public's financial assets portfolio	10.5	1.8	4.4	4.6	6.4	5.1
Consumer Confidence Index	3.8 ^c	1.9	3.7	2.9	-0.4	-14.0
Fixed capital formation (excluding ships and aircraft)	2.4	12.0	4.9	3.9	2.7	-3.6
Credit to the business sector	4.2 ^b	3.5	4.1	5.5	4.0	2.5
Real 10-year interest rate (government bonds, level)	3.5	0.4	0.6	0.5	0.0	-0.5
Purchasing Managers Index (level)	50.5 ^c	52.3	55.2	53.3	51.3	48.5
Change in capital utilization in manufacturing (net balance from the Bank of Israel Companies' Survey)	-3.0	-0.1	5.7	5.1	-7.0	-14.0
Public consumption excluding defense imports	2.2	4.2	4.4	4.3	2.7	2.9
Total taxes ^a	32.7	31.0	32.4	30.9	30.3	30.0
General government budget deficit^a	4.9	2.0	2.1	4.3	4.5	11.9

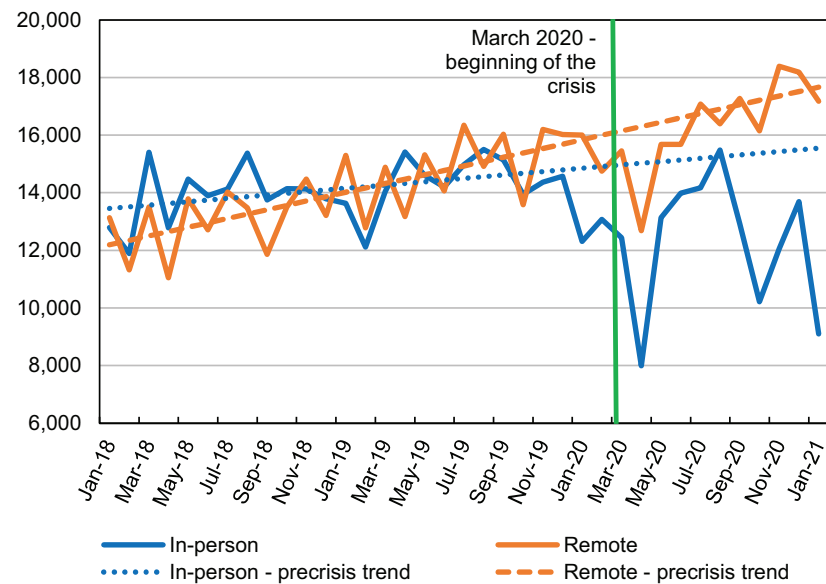
^a Percent of GDP.^b The figure relates to the years 2005–2015.^c The figure relates to the years 2002–2015.

SOURCE: Based on Central Bureau of Statistics, the Kantar and Bank Hapoalim Consumer Confidence Surveys, the Bank of Israel Companies Survey, and the Purchasing Managers Indices compiled by Bank Hapoalim and the Purchasing Managers Association.

\$500, which were also made remotely (in contrast with in-person transactions during a trip abroad). The total annual transactions are characterized by an uninterrupted upward trend, and the increase in 2020 even deviated upward from the trend. These transactions were not influenced by the restrictions in Israel¹⁴ and it is reasonable to assume that some of the increase in 2020 was a shift toward purchases abroad as a substitute for in-person purchases in Israel. Nonetheless, the annual growth in the value of these purchases between 2019 and 2020 was only about NIS 1.8 billion, as opposed to an annual decline of NIS 21 billion in the value of in-person purchases in Israel during that same period and a total decline of NIS 70 billion in consumption in the service industries (nonhousing). Thus, even if all of the increase in purchases abroad was the result of the substitution effect, which is unlikely, that would still be a very low rate of substitution. These data indicate the high likelihood that once the COVID-19 crisis is over and the restrictions on activity in the close-proximity industries are lifted, private consumption will rapidly recover.

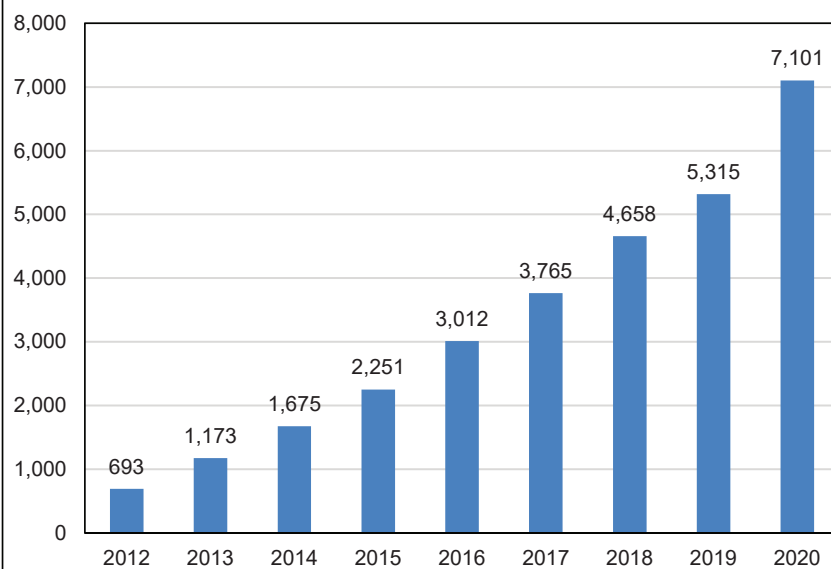
¹⁴ In January–February 2020, as a result of the onset of the pandemic in China, there were delays in the delivery of packages from China to the rest of the world, including Israel. These delays disappeared in March, with the cancelation of lockdowns in China, which occurred during the first lockdown in Israel.

Figure 2.5
Credit Card Purchases by Presence at the Place of Transaction,
January 2018–January 2021 (NIS million, monthly total, original data)



SOURCE: Based on Shva.

Figure 2.6
Israelis' Purchases on Foreign Websites, Products up to \$500,
2012–2020 (NIS million, 2015 private consumption prices)



SOURCE: Based on Central Bureau of Statistics.

2. Public consumption

Public consumption, apart from defense imports, grew by 2.9 percent (NIS 8.4 billion) in 2020. This was primarily the result of an increase in civilian government procurement, partly in order to meet the needs of the healthcare system as part of the response to the COVID-19 crisis. This increase was moderated by the drop in total work hours in the public sector, which was apparently due to the lack of a budget and the placing of many public sector employees on forced vacation during the first lockdown.¹⁵

The vast majority of economic programs in response to the COVID-19 crisis were focused on support for businesses, transfer payments to households, and programs to encourage and preserve employment (which are not part of public consumption).¹⁶ In 2020, the government spent about NIS 66 billion on these programs. In addition, funds were established that provide various parts of the business sector with state-guaranteed credit. (For further details on the government's steps to deal with the crisis, see Chapters 3 and 6 in this Report.)

By means of these measures, the government moderated the shock caused by the pandemic. The transfer payments and grants to individuals, and in particular unemployment benefits, went to finance private savings and prevented the collapse of weak households, which would have harmed not only them but also the businesses from which they make their purchases. As seen above (Table 2.5), private disposable income rose in 2020 despite the crisis, as a result of the sharp increase in transfer payments. The grants, support, and loans to businesses financed the continuation of business activity and allowed those businesses to continue employing workers and acquiring goods and services, and thus prevented an even wider spillover of the economic crisis to include tenants, suppliers, and the banks.¹⁷ This support also helped finance the expenses and obligations of businesses that were temporarily closed because of the lockdowns or restrictions, with the goal of allowing them to rapidly return to normal operations upon removal of the restrictions.

It is not simple to assess the overall contribution of the expansion in government expenditure to GDP during the year of the crisis versus what would have occurred without it. The conventional estimate of the fiscal multiplier (how much does a one-

The government increased transfer payments and support by NIS 66 billion in response to the crisis.

The government's measures mitigated the effect of the crisis.

The government's measures apparently prevented an additional drop of NIS 26–35 billion in GDP, although they will create a challenge once the crisis is over.

¹⁵ During the first lockdown, public sector workers were sent on paid leave. In the National Accounts, this is not reflected in the wage expenditure component of public consumption in current prices, since wages continued to be paid. In contrast, a decline is seen when using fixed prices, which reflects the drop in the actual number of work hours in the public sector.

¹⁶ Public consumption includes government expenditure on ministries' consumption, including wage payments, purchasing, and depreciation. Public expenditure includes public consumption as well as any other government expenditure, i.e. government investment, interest payments on the public debt, and transfer payments to individuals and support for businesses. The transfer payments and support are not part of public consumption, but are rather part of the consumption by the individuals and businesses who received them.

¹⁷ In Round 9 of the Central Bureau of Statistics Real-Time Survey in October (towards the end of the second lockdown), 48 percent of businesses reported that they had requested grants from the government (not including state-guaranteed loans). About 8 percent of the companies reported that the government grants for worker preservation had a large or very large impact on them.

shekel addition to public consumption contribute in the end to increasing GDP) ranges from 0.6 to 0.8.¹⁸ However, since most of the expansion in government activity was not direct from public consumption to GDP, but rather indirect by way of transfer payments, it is incorrect to use those estimates. The literature on multipliers for transfer payments is sparse and not unambiguous.¹⁹ Moreover, during the COVID-19 crisis and unlike in previous crises, the government did not try to encourage demand in order to support economic activity (Keynesian policy), but rather acted primarily to prevent the collapse of businesses and households.

The literature on the COVID-19 crisis sheds light on this issue and indicates that when part of the economy is shut down, the multiplier for regular fiscal policy, i.e. an increase in public consumption, is smaller than usual.²⁰ The literature also reports that during the COVID-19 crisis, general transfer payments (such as universal payments to every citizen) will have a multiplier of about 0.15 while goal-specific transfer payments (such as unemployment benefits) will have a multiplier of about 0.6.²¹ Since the government programs to deal with the COVID-19 crisis were based on transfer payments and support for individuals and businesses, the use of the aforementioned multipliers for transfer payments during this period makes it possible to estimate that the additional public expenditure to deal with the crisis directly prevented a drop of 1.9–2.6 percent of GDP in 2020. In other words, the additional transfer payments combined with the growth in public consumption apparently prevented an additional decline of NIS 26–35 billion in GDP. This is in addition to the potential effect of preventing the collapse of businesses and the bankruptcy of households in coming years. However, the fact that economic activity during the crisis was supported to a large degree by public expenditure will pose a challenge once the crisis ends and the support programs end with it, which will involve in that the economy will need to transition of the economy back to normal activity that relies on private consumption.

¹⁸ Valerie A. Ramey (2019). “Ten Years After the Financial Crisis: What Have We Learned from the Renaissance in Fiscal Research?” *Journal of Economic Perspectives* 33(2): 89–114.

¹⁹ Romer and Romer found that temporarily increasing transfer payments does not affect private consumption or GDP: Christina D. Romer and David H. Romer (2016). “Transfer Payments and the Macroeconomy: The Effects of Social Security Benefit Increases, 1952–1991”, *American Economic Journal: Macroeconomics* 8(4): 1–42. In contrast, Coenen et al. found that an increase in transfer payments during a crisis has a multiplier of 0.2–0.6 in the case of general transfers and 1–1.5 in the case of goal-specific transfers to affected households: Gunter Coenen et al. (2012). “Effects of Fiscal Stimulus in Structural Models”, *American Economic Journal: Macroeconomics*, 4(1): 22–68.

²⁰ Raj Chetty et al. (2020). “How Did COVID-19 and Stabilization Policies Affect Spending and Employment? A New Real-Time Economic Tracker Based on Private Sector Data”, Working Paper No. w27431. National Bureau of Economic Research; Veronica Guerrieri et al. (2020). “Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?”, Working Paper NO. w26918. National Bureau of Economic Research.

²¹ Christian Bayer et al. (2020). “The Coronavirus Stimulus Package: How Large is the Transfer Multiplier?” CEPR Discussion Paper 14600, Center for Economic Policy Research.

3. Investment

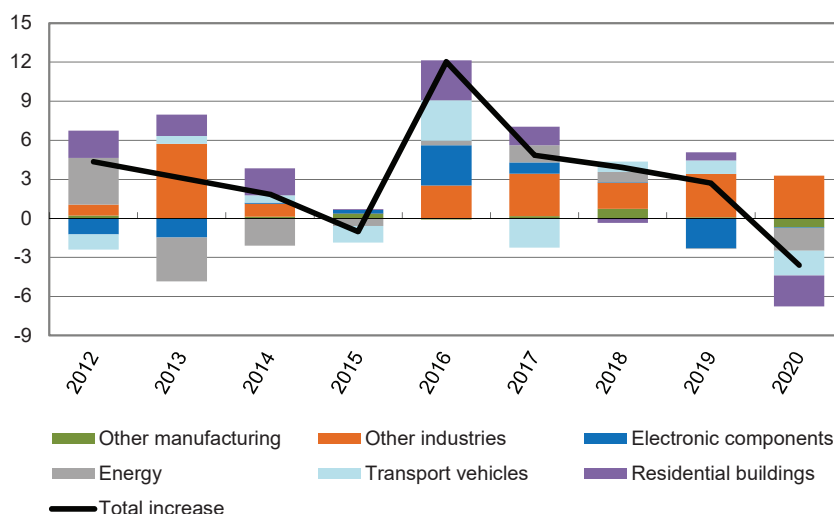
Investment in fixed assets (excluding ships and planes) declined by 3.6 percent this year. There were three main sources for this decline: residential construction, investment in energy, and the acquisition of vehicles by businesses (Figure 2.7). The adverse effect on investment was somewhat offset by the growth in investment in intellectual property and in transportation infrastructure.

Total investment in construction fell by 4.0 percent due the significant drop in nonresidential building starts and the slowdown in residential construction which began with the onset of the pandemic (Table 2.3). A detailed analysis of the developments in the construction industry and the housing market this year is presented in Box 2.3 at the end of this chapter. The reason for the drop in investment in energy is apparently the completion of work on the Leviathan natural gas field, which made it possible to begin production in December 2019. However, about 97 percent of these investments are imported and therefore have only a small effect on GDP. Investment in vehicles declined by about 28 percent, apparently as a result of leasing companies' response to lower demand for leased vehicles due to reduced travel.

In contrast, investment grew in the rest of economy (excluding manufacturing). This included investment in rail and road infrastructure, which was facilitated by the lockdowns and the restriction of railway activity that allowed projects to move forward more rapidly. There was increased investment (by 2.1 percent) in intellectual property, which reflected the high demand for products of the high-tech industries during the crisis.

Fixed capital formation excluding ships and aircraft declined by 3.6 percent.

Figure 2.7
Increase in Fixed Capital Formation: Total and Contribution of Components, 2012–2020 (percentage points)



SOURCE: Based on Central Bureau of Statistics.

4. Exports

Investment in construction and energy and the purchase of vehicles declined.

Exports excluding tourism increased, in contrast to the contraction in global trade.

Israel's tourism exports were low relative to the OECD, and the closing of the skies therefore had less of an effect on Israel's GDP.

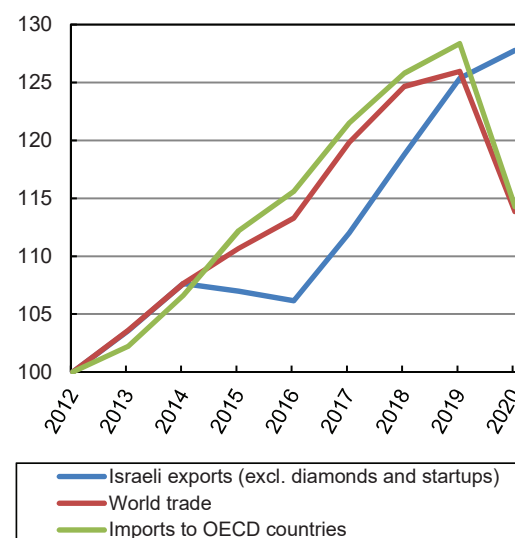
Israel's exports continued to grow in 2020, despite the drop in global trade and in the imports to the OECD countries (Figure 2.8). The crisis's effect on exports was reflected primarily in the closing of the skies, which reduced the export of tourism services to almost zero. In contrast, other components of goods and services exports (excluding tourism, diamonds, and startups) grew at a rapid rate of 6.7 percent, the highest level since 2011. Following a number of years in which the growth of Israel's goods exports (excluding diamonds) was in line with the global rate, the growth rate in 2020 (3.3 percent) was higher than in the US and higher than the OECD average (Figure 2.9a). This was even more so in the case of services exports (excluding tourism and startups)²², which grew by 11.0 percent this year. These exports from Israel grew even prior to the crisis at much faster rates than in the US and the OECD. In 2020, the gap widened: Services exports (excluding tourism) of the US and the OECD fell while the growth in Israel's services exports accelerated (Figure 2.9b).

The striking differences in the crisis's effect on exports between Israel and other countries, particularly the OECD countries, underscore the unique characteristics of Israel's exports:

The proportion of Israel's tourism exports as a share of GDP was small relative to most of the OECD countries prior to the crisis (1.7 percent vs. an average of 3.3 percent). Therefore, the effect of the global decline in tourism on exports, and therefore on GDP, was smaller in Israel than in other countries.

Services account for a high share of Israel's exports relative to the OECD countries, and most of it is comprised of high-tech services. The global demand for services, and in

Figure 2.8
World Trade, Imports to OECD Countries,
and Israeli Exports, 2012–20
(quantitative index: 2012=100)

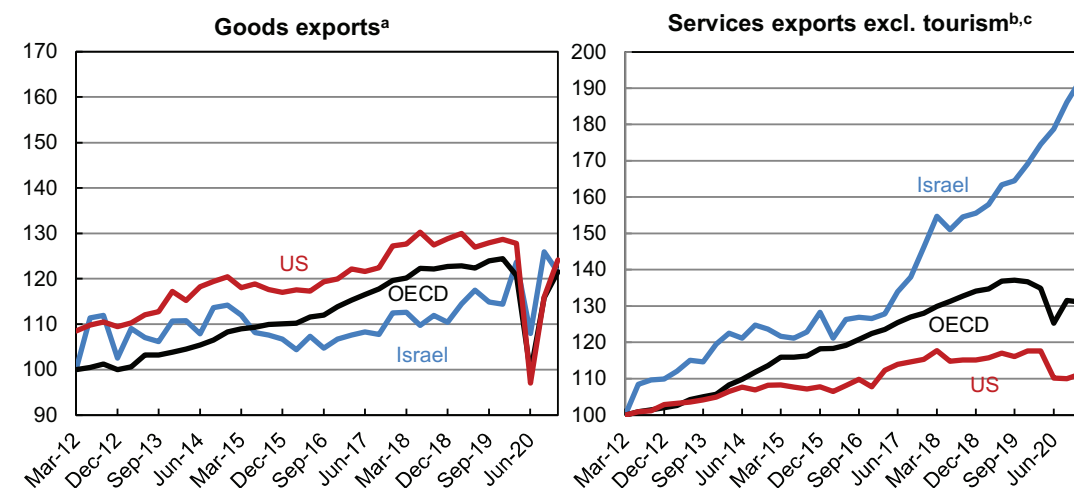


SOURCE: Based on Central Bureau of Statistics and OECD.

²² This aggregate is defined as “other business services”, which accounted for an average of about 81 percent of services exports between 2016 and 19. (The remaining services exports were comprised of tourism services, the use of foreign workers, and the export of startup companies.) Most of the exports originated from the high-tech industries, but they also include the export of selected financial, professional, scientific and technical services, and services exports by other industries.

Figure 2.9

Goods and Services Exports (excl. tourism) from Israel, US, and OECD Countries, 2012–2020 (quantitative indices, 2012:Q1=100)



^a Israel—excl. diamonds.

^b Israel—excl. the sale of startup companies.

^c OECD and US—assuming that tourism declined by 25% in 2020:Q1 and by 90 percent during the rest of 2020 (relative to the 2019 average).

SOURCE: Based on OECD and Central Bureau of Statistics.

particular high-tech services, has grown together with global prosperity and with the growing possibilities for remotely delivering them, which facilitate the export of services in ways and at distances that were not possible until recently, particularly during a period of limited international mobility. One of the clearest expressions of this is the strong and persistent growth of startup companies in Israel. The output of these companies (which is not included in exports) grew by 12.2 percent in 2020, which is a continuation of the double-digit average growth since 2014. Global technological needs created as a result of COVID-19 apparently contributed to the growth in demand for high-tech services exports. Box 2.2 presents a more in-depth view of the developments in high-tech in 2020.

Israel's high-tech exports are a significant portion of its total exports, and the global demand for high-tech services continued to grow, particularly during the crisis.

Box 2.2

The High-Tech Sector under the Shadow of the COVID-19 Crisis¹

The high-tech sector, characterized by high productivity and high wages (see Table 1 for the main features of this sector) continued to grow in 2020 despite the economic crisis triggered by the spread of the COVID-19 virus. The overall annual growth rate in the high-tech sector was approximately 5.8 percent, exceeding the average annual growth rate of the past decade (Figure 1). The growth rate of the software segment, which accounts for the largest share of the sector (57 percent) was especially high, at 8.6 percent. Although output declined in specific high-tech segments (pharmaceuticals, aviation manufacturing, engineering R&D, and natural sciences), these segments jointly account for a small portion of the high-tech sector's output.² High-tech output, exports, and revenues increased steadily over the year, in contrast with many other industries, which experienced negative shocks resulting from the crisis and recovered only later in the year (Figure 2). High-tech capital raising soared in 2020, with a growth rate of 27 percent and a volume of US\$ 9.9 billion (IVC, 2020). Most investments were in firms in the advanced growth stage, which were consequently able to continue to expand their business operations.

The high-tech sector's considerable share of the economy is apparently one of the factors underlying the more moderate adverse economic effects of the pandemic in Israel than in other developed countries. Figure 3 presents the association between the high-tech sector's share of GDP and the decline in GDP in the first

Table 1

Characteristics of the high-tech sector^a, 2010–2019

	2010	2019		2010	2019
High-tech output:			Number of employees (thousand)	212	321
Share of overall GDP	11.2%	12.6%	Share of all employed persons in the economy	7.6%	9.2%
Share of business sector output	15.1%	17.0%	Share with secondary education	80%	85%
Average annual growth rate (2010–2019)		4.0%		2011	2018
High-tech exports (in US dollars)	27,449	45,765	Average wage per high-tech employee (NIS, 2018 prices)	16,493	21,289
Percentage of total exports	34%	40%			

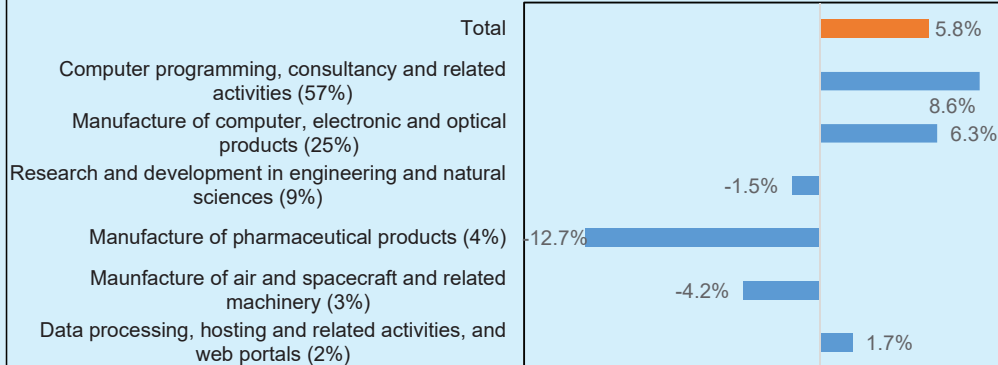
^a For a precise definition of the high-tech industries, see footnote 1 of this Box.

SOURCE: Based on Central Bureau of Statistics, Israel Tax Authority, and Israel Innovation Authority.

¹ The high-tech sector is defined as the group of the following economic industries, based on the Central Bureau of Statistics classification (2011): Manufacture of pharmaceutical products, including homeopathic preparations (21); Manufacture of computer, electronic and optic products (26); Manufacture of air and spacecraft and related machinery (303); Computer programming, consultancy, and related activities (62); data processing, hosting and related activities, web portals (631); and Research and development centers in engineering and natural sciences (720 and 721). This definition is identical to the definition used by the Innovation Authority and is similar to the CBS definition of the high-tech industry excluding the communications industry. Nonetheless, several analyses include the communications industry where it was not possible to separate the data.

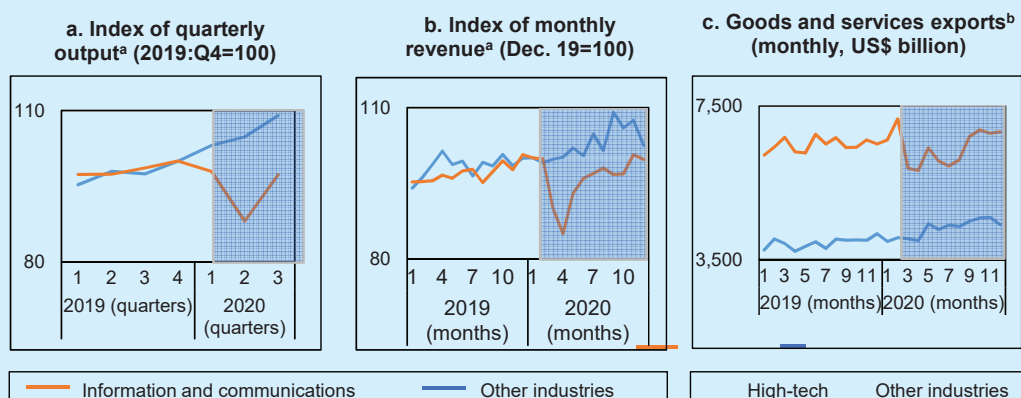
² The output of these industries accounts for a mere 16 percent of the total high-tech industry output. The pharmaceutical manufacturing industry contracted by 12.7 percent, further to the trend observed in recent years. This was unrelated to COVID-19, and resulted mainly from the declining position of Teva.

Figure 1
Economic Growth in the High-Tech Sector, by Industry^a, 2019–2020



^a The number in parentheses represents the industry's share of high-tech sector output in 2019.
 SOURCE: Based on Central Bureau of Statistics and Israel Innovation Authority.

Figure 2
Development of the High-Tech Sector's Output, Revenue, and Exports During 2020



^a The information and communications industries account for a considerable part (59%) of the high-tech sector's output, mainly in the field of software. A small part (15%) of the information and communications industries' output is not attached to high-tech.

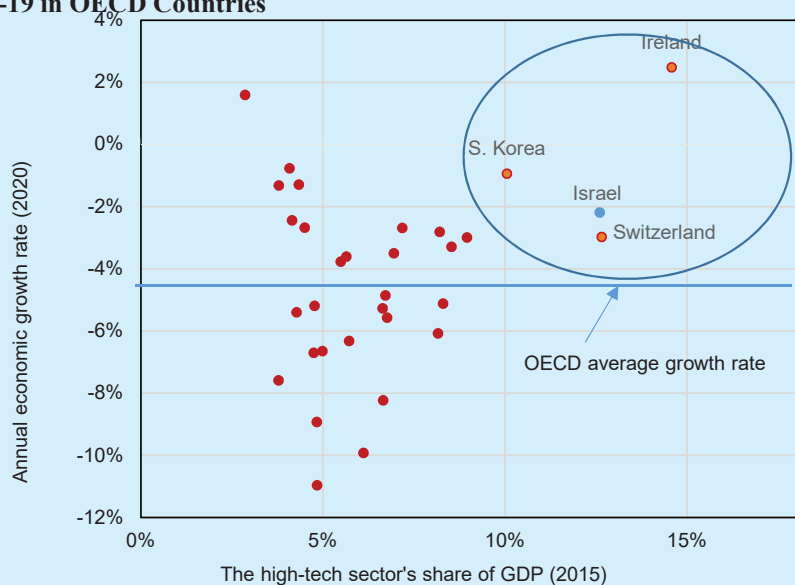
^b Seasonally adjusted. The exports of all high-tech industries plus the communications industry, excluding startup companies. For a precise definition of the high-tech industries, see footnote 1 in this Box. The exports of the other industries excludes diamonds.

SOURCE: Based on Central Bureau of Statistics.

three quarters of 2020. Israel is in the group of four “high-tech superpowers” whose high-tech sectors make an especially high contribution to their GDP.³ In these countries, GDP was only moderately affected—less than the pandemic’s average impact in the OECD. In other countries, in which the high-tech sector does not constitute an exceptionally large share of the economy, no correlation was found between the high-tech sector’s weight in the economy and the pandemic’s adverse impact on GDP.

During the lockdowns and under stringent movement restrictions, the number of employees in the high-tech sector declined less than in other industries, mainly because most high-tech companies quickly adapted to work-from-home arrangements. According to a business survey conducted by the Central Bureau of Statistics during the spread of the COVID-19 virus (“the Real-Time Survey”), 58 percent of employees in this sector were able to transition to work-from-home in March, immediately after the outbreak of the crisis, compared with 26 percent in other industries.⁴ The Real-Time Survey of January 2021 indicates that approximately 80 percent of high-tech employees work in companies that reported a desire to expand work-from-home options for their employees after the end of the crisis as well.⁵

Figure 3
The Link Between High-Tech's Share of GDP^a and the Economic Impact of COVID-19 in OECD Countries



^a Including the communications industry. For a precise definition of the high-tech industries, see footnote 1 in this Box.
SOURCE: Based on OECD STAT and STAN Industrial Analysis.

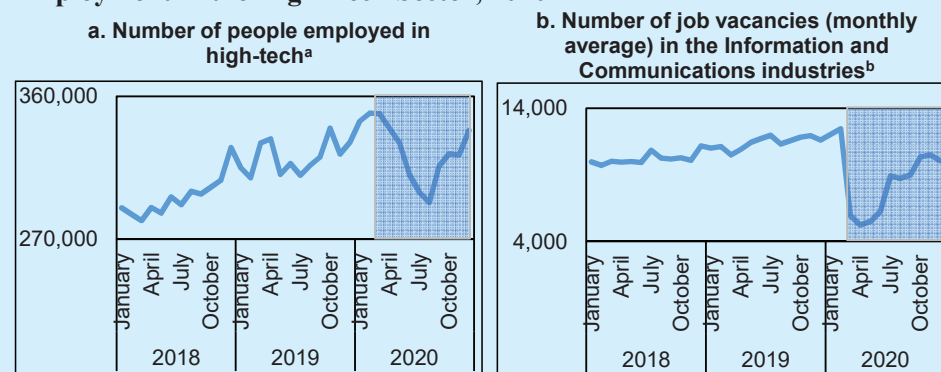
³ A high-tech super-power is defined as a country in which the high-tech sector’s share of the economy is greater by at least one standard deviation than the average share of the high-tech sector in OECD countries.

⁴ It was conventional practice in many companies in the sector to permit partial work from home even before the COVID-19 crisis. According to a 2014 survey by Ethosia, an HR placement agency, 58 percent of high-tech companies permitted their employees to work part time from home, especially employees in the software, communications, and biotech sectors.

⁵ Responded “to a great extent” or “to a very great extent” to the question: “In your opinion, how much will your firm seek to increase the scope of work from home at the end of the crisis, compared with the situation before the crisis?”

Despite the high work-from-home capabilities, and in contrast with the positive picture that emerges from output, revenue, and export figures, annual employment in the high-tech sector is complex, due to trends that changed sharply over the year (Figure 4A). Beginning in March, the number of employees in the high-tech sector declined, and in August employment reached its low point for the year, with approximately 293,000 employees—7 percent fewer than in August 2019. In the final third of the year, a quick recovery was recorded, and in December 2020 the number of employees had risen to approximately 339,000, exceeding December 2019 levels by 2 percent, yet still 3 percent lower than employment levels in the period immediately preceding the crisis (February 2020).

Figure 4
Employment in the High-Tech Sector, 2020



^a For a precise definition of the high-tech industries, see footnote 1 in this Box.

^b The information and communications industries account for a considerable part (59%) of the high-tech sector's output, mainly in the field of software. A small part (15%) of the information and communications industries' output is not attached to high-tech.

The blue rectangles indicate the COVID-19 crisis period.

SOURCE: Based on Central Bureau of Statistics Labor Force Survey.

The temporary decline in employment levels in the high-tech sector was the result of a wave of layoffs and furloughs. According to the Real-Time Survey, approximately 14 percent of individuals who were employed in the high-tech sector on the eve of the crisis were dismissed or furloughed in March–April, and this figure dropped to 9 percent in July. The decline in employment in this sector resulted not only from employee dismissals but also from a sharp drop in new recruits. For example, the number of job vacancies in the information and communications industries showed a steep decline in March–June (based on monthly averages) and was 48 percent lower than in the corresponding period in 2019 (Figure 4B). Recovery was rapid toward the end of the year, although even in October, 5 percent of precrisis high-tech employees remained unemployed (according to the Real-Time Survey). Moreover, the monthly number of job vacancies in October–December was still approximately 13 percent lower than in the corresponding period of 2019. Another finding of the Real-Time Survey that is indicative of the stress in the high-tech sector during the COVID-19 crisis is that a significant proportion of employers in this sector (whose companies jointly

employee 28 percent of the sector's employees) reported having made pay cuts to some of their employees at an early stage of the crisis (in May), more than in any other industry surveyed.⁶

These figures raise the question of how to reconcile the considerable annual growth in output, revenue, and exports in the high-tech sector over the entire year with the considerable decline in the number of employees in this sector in the first nine months of the year. One possible explanation is that despite the significant decline in the number of employees, labor inputs (effective number of hours) did not decline compared to the previous year, which prevented a potential drop in the sector's output (Figures 5A and 5B). The increased scope of work among existing employees can be explained by several possible factors: greater flexibility in work hours and savings in travel time due to working from home; pressure by employers and employees' increased motivation to invest efforts in view of layoff threats; and less incentive to take vacation time due to travel restrictions and restrictions on leisure activities.⁷

In addition, the employees who were dismissed may have been employees with relatively low productivity, which prevented some of the adverse effects. A study of CBS Labor Force Surveys found that the decline in employment of low-wage earners in the high-tech sector was slightly greater than the decline in employment of other earners, but the difference was not significant. In July–August 2020, the lowest point of employment in the high-tech sector in 2020, the sector recorded a 12 percent decline (compared to the monthly average in 2019) in the employment of employees whose salary in 2018 was in the bottom third in this sector, compared to a decline of approximately 8 percent in the employment of other employees. Moreover, the decline (7 percent) in employment of core employees was smaller than the corresponding decline in employment of noncore employees (10 percent), although the difference was not large.⁸ Therefore the change in the composition of employees is not sufficient to explain the differences between the changes in high-tech sector output and employment this year.

Another potential explanation for the gap between high-tech sector output growth and the temporary decline in high-tech employment is related to the heterogeneous effects of the COVID-19 crisis on this sector. On the one hand, many technological applications such as video calls, interactive learning, video games, live streams, e-commerce, fintech, and food deliveries prospered as a result of COVID-19-related social distancing requirements. (For in-depth information, see CB Insights, 2020.) The transition to remote learning and work triggered a rise in the demand for computers and hardware, as well as the demand for technology-related jobs (in cloud service development, cybersecurity, IT maintenance, data science, and other fields; see Dice, 2020).

The high-tech sector does, however, include firms that suffered significant negative impacts as a result of the crisis. Specific technology sectors were directly affected, mainly transportation and tourism technologies.⁹ Furthermore, the firms whose revenues significantly declined were typically small firms with few employees

⁶ This figure is consistent with the study by Friedman (2017), who found that high salaries in the high-tech sector give firms a certain degree of flexibility in imposing salary cuts during a crisis, and therefore such salaries effectively serve as a safety cushion that enables them to avoid employee layoffs.

⁷ For example, during the Jewish New Year holiday period in 2020, the number of work hours did not decline, in stark contrast to the corresponding period in 2019.

⁸ Core employees are managers, programmers, engineers, practical engineers, technicians, and R&D workers. Noncore employees are the remainder of employees.

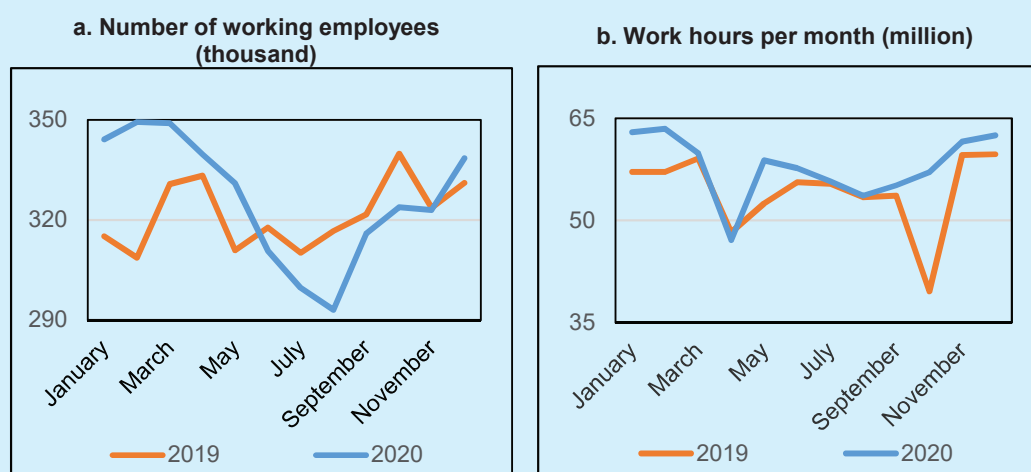
⁹ In the United States, for example, ride-sharing application (e.g., Lyft, Uber) or tourism application (e.g., Tripadvisor) companies, or firms that tried to promote shared work spaces (e.g., WeWork), as well as businesses in other areas experienced a serious decline in activity and were forced to dismiss employees. See McBride and Cannon (2020).

and a limited ability to absorb economic shocks while maintaining employment.¹⁰ Most of the firms that were adversely affected were early-stage start-up companies that suffered from operational difficulties at the outset of the crisis due to a lack of financing from potential investors who preferred to “sit on the fence” due to extreme uncertainty. This finding is supported by the sharp (35 percent) decline in capital raising by seed-stage start-up companies in 2020. (For additional information see Chapter 4 of this Report.)

COVID-19’s heterogeneous impact on the high-tech sector may help us to understand why employment levels in this sector dropped despite the overall rise in output (although this is difficult to prove with certainty in the absence of specific firm-level data). It is reasonable to assume that firms that experienced economic difficulties and uncertainty were forced to dismiss or furlough employees as a means of coping urgently with liquidity difficulties. In contrast, firms that devised services to satisfy COVID-19-related demands enjoyed considerable increases in revenue, but they were unable to immediately increase the number of their employees at the same rate.

In summary, in 2020 the Israeli high-tech sector expanded, and demonstrated strong resilience, on average, in the face of the COVID-19 economic crisis, in contrast to other economic sectors that experienced more significant shocks. The crisis had a heterogeneous impact across firms and industries within the sector, and total employment in the sector declined until September, but thereafter recovered and soared.

Figure 5
Change in the Amount of Work in High-Tech^a: 2020 vs. 2019



^a For a precise definition of the high-tech industries, see footnote 1 in this Box.

SOURCE: Based on Central Bureau of Statistics Labor Force Survey.

¹⁰ The Real-Time Survey indicates that the rate of high-tech companies that sustained a severe decline in revenue (more than 50 percent) was 2–4 times greater (with monthly differences) than the weighted impact on employees. This implies that the impact on revenue was experienced mainly by firms with few employees.

b. The composition of sources—GDP, imports, and inventory

Imports dropped by 8 percent, which was much larger than the decline in GDP. This was because most of the decline in demand was in the demand for imports.

In addition to the decline in GDP, imports (excluding taxes) declined by 8.0 percent, or NIS 29 billion. This means that imports, which accounted for about one-quarter of sources in 2019, explain about 53 percent of the decline in sources in 2020. Imports therefore absorbed a significant share of the decline in demand.

The sharp decline in imports this year reflects two factors: a decline in travel abroad (NIS 23 billion), and a decline in mobility, which brought with it a decline in fuel consumption (NIS 5 billion) due to the lower travel in the country throughout the year. The total import of other (nontourism) services and other (nonfuel) goods was unchanged compared with 2019 (Table 2.6).

Table 2.6
Quantitative imports and exports of goods and services, and changes in 2020^a

	Weight in imports/exports	NIS billion - 2019 prices		Change in 2020	
	2019	2019	2020	%	NIS billion
Imports excl. defense, ships, aircraft, and diamonds	100%	357.4	329.0	-7.9%	-28.4
Services imports - Tourism	8%	29.0	6.0	-79.1%	-22.9
Services imports - Total excl. tourism	24%	85.8	84.5	-1.4%	-1.2
Goods imports - Fuel	10%	34.5	28.3	-17.9%	-6.2
Goods imports - Other	62%	222.4	223.8	0.7%	1.5
Conversion from CIF to FOB	-4%	-12.8	-12.5	-2.5%	0.3
Exports excl. diamonds	100%	395.1	394.0	-0.3%	-1.1
Services exports - Sales of startup companies	3%	10.9	2.4	-78.1%	-8.5
Exports excl. diamonds and startups	97%	384.2	391.6	1.9%	7.4
Goods exports - Manufacturing and agriculture	50%	197.3	203.7	3.3%	6.4
Services exports - Tourism and nonresidents' consumption	7%	27.1	9.4	-65.2%	-17.7
Services exports - Other	40%	159.9	178.5	11.6%	18.6

^a Technical note: The numbers of the import components do not precisely add up to the headline number. This is due to a variety of reasons, mainly the handling of the conversion from CIF to FOB, which does include diamonds, ships, aircraft.

SOURCE: Based on Central Bureau of Statistics.

3. MACROECONOMIC DEVELOPMENTS IN THE LABOR MARKET

The crisis affected employment more than GDP. Broad unemployment was high, and varied with the timing of the lockdowns.

The COVID-19 crisis constituted a shock to the labor market in Israel, accompanied by volatility that was exacerbated as a result of the lockdowns. The crisis's effect on employment was much stronger than its effect on GDP, as evident from the fact that the drop in total work hours was 3.5 times the drop in GDP (Table 2.7). The first lockdown led to more than a million workers being laid off (mostly furloughed), which raised the broad unemployment rate to 37.1 percent of labor force participants aged 15 and above (Figure 2.10).²³ Most of them returned to work between the first and second lockdowns, and the broad unemployment rate fell to 11.7 percent, although during the

²³ For the definition, see footnote 4 in this Chapter.

Table 2.7
The supply of gross domestic and business sector product, 1995–2019

	(annual change, percent)					
	1995–2015	2016	2017	2018	2019	2020
Gross Domestic Product	3.7	3.8	3.6	3.5	3.4	-2.5
<i>of which</i> : Business sector product	4.1	4.0	3.8	3.7	4.0	-3.1
Output of public services	2.1	3.5	2.7	2.6	1.4	-3.3
Stock of physical capital	4.4	3.4	3.9	3.9	3.9	4.0
Labor force	2.5	2.1	1.7	1.9	1.4	-0.8
Total hours worked	2.7	3.8	2.2	1.3	0.9	-8.0
Total hours worked in the business sector	2.6	4.2	2.0	0.8	1.1	-9.7
Total factor productivity	0.5	-0.6	1.1	1.2	1.4	2.3
Output per work hour (nominal)	4.5	1.1	2.2	3.5	5.2	7.3
Labor compensation per hour worked (nominal)	3.9	2.0	3.3	4.4	3.8	5.8
GDP labor share	-0.6	0.8	1.1	0.8	-1.4	-1.4
GDP labor share (level)	58.6	55.4	56.0	56.5	55.7	55.1
Potential output ^a		3.4	3.2	3.5	3.5	3.0
Output gap ^{a,b}	0.0	0.1	0.3	0.6	0.3	-5.3

^a Estimate. Potential output is equal to the output in a hypothetical equilibrium in which capacity utilization of all factors of production is similar to the long-term average. At this stage, it is difficult to assess whether the COVID-19 crisis led to a long-term change in the path of potential output. The output gap reflects the extent to which actual GDP deviates from potential output. The change from year to year in the output gap is not the same as the difference between actual growth and potential growth as there are gaps between the quarterly and annual National Accounts data.

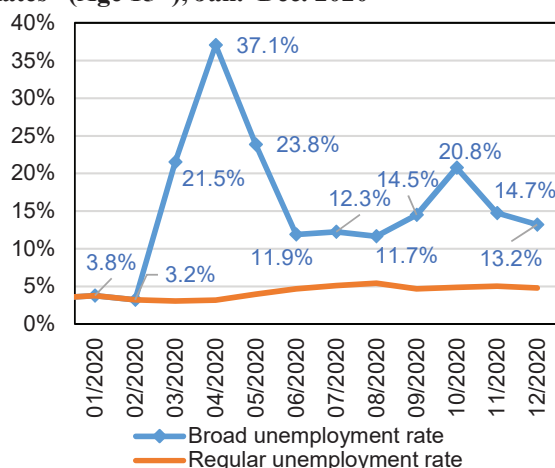
^b A negative output gap is obtained when actual GDP is lower than potential GDP.

SOURCE: Based on Central Bureau of Statistics.

second lockdown it again jumped to 20.8 percent. Many of the furloughed workers returned to work after the second lockdown, such that the broad unemployment rate fell back to 13.2 percent by the end of the year, before rising again in early 2021 with the tightening of the third lockdown, and then falling again with the opening of the economy in February. The number of employee posts (excluding furloughed workers) declined by an average of 10 percent in 2020.

Some of the unemployed were furloughed for most of 2020, and some were even unemployed continuously starting from the first lockdown. Thus, their return to the place of work from which they were furloughed is not guaranteed. The unpaid leave model is meant to ease the return of workers to employment at the end of the lockdown. However, due to the prolonged duration of some furloughs, and in order to prevent prolonged damage to the economy (known as scarring) as a result of furloughs or temporary unemployment turning into long-term unemployment, the government took various steps to encourage workers to return to work. This primarily involved steps

Figure 2.10
The Unemployment and Broad Unemployment
Rates* (Age 15+), Jan.–Dec. 2020



* Includes the unemployed, temporarily absent due to reasons having to do with COVID-19 (including furloughs), labor force nonparticipants who were dismissed from March 2020 onward, and nonparticipants who stopped working for other reasons or did not work in the past and are interested in working now, but did not look for work in the past month due to COVID-19.

SOURCE: Central Bureau of Statistics.

Work hours declined, but somewhat less than the number of workers.

to incentivize businesses to hire them (see Chapter 5, Section 2 on the policy adopted in the labor market in Israel). This is in view of indications that a significant part of the prolonged impact on employment (between the lockdowns) was a reflection of low demand for workers among employers, as shown by the drop in the job vacancy rate in the economy and by the ratio between the number of unemployed and the job vacancy rate.

The large decline in the number of workers was also reflected in fewer work hours (Table 2.8). However, the drop in work

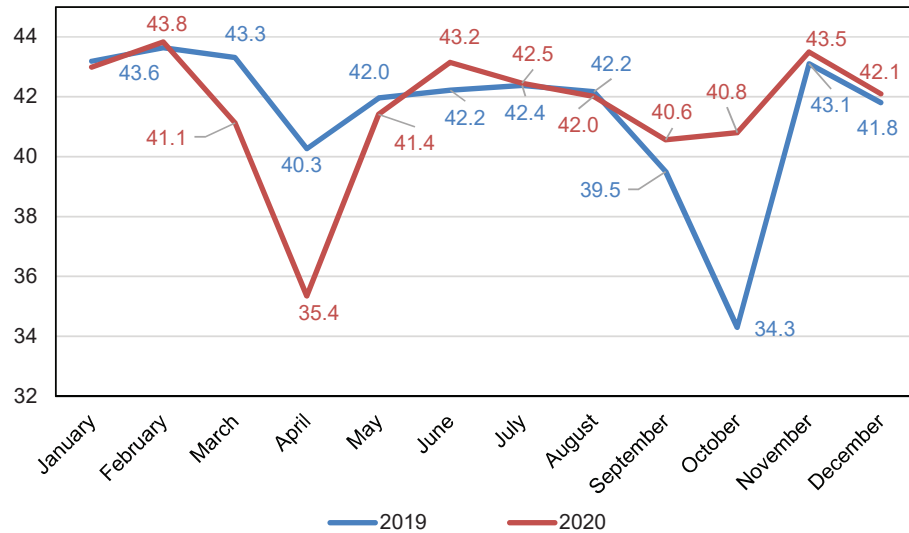
hours was more moderate, since the proportion of furloughed employees who worked in part-time jobs prior to the crisis was higher than that of other employees, and also because the number of work hours increased for some of the employees who remained at work. This was particularly noticeable during the second lockdown, which began during the High Holiday period, such that workers who were not furloughed worked more than during a normal year due to the inability to take holiday time and the ability to work from home. In contrast, during the first lockdown, for which the economy was unprepared, there was a noticeable drop in work hours even among workers who were not furloughed (Table 2.11).

As mentioned, the effect on employment this year was worse than the effect on GDP. An examination of productivity-weighted labor input²⁴ shows that it declined less than regular labor input (total work hours), since the wages (productivity) of furloughed workers was lower on average than that of employees who continued to work. In order to understand the source of this phenomenon, it is important to determine whether it is the result only of the fact that close-proximity industries,

²⁴ The weighting is according to 2018 wages since that is the most recent year, at the time of writing, for which there is available wage data.

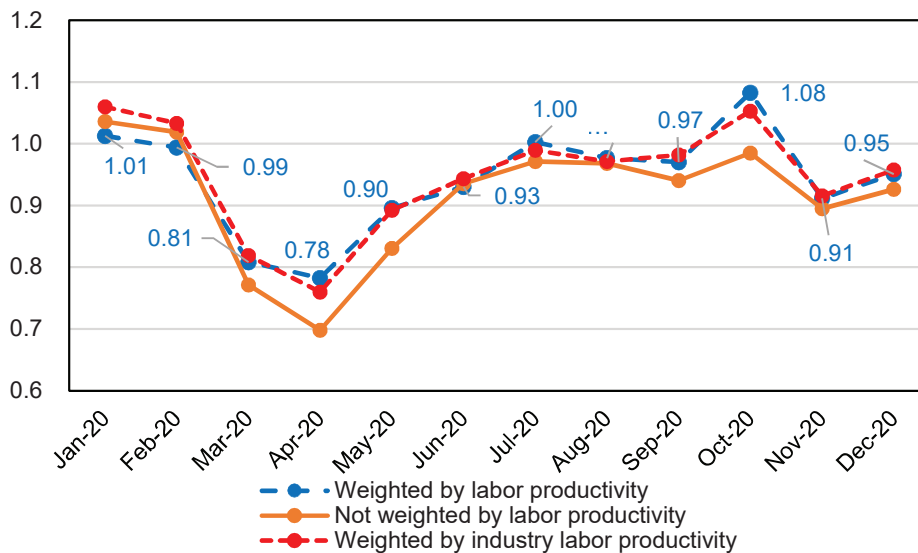
The restrictions and the lockdowns were the main reason for the increase in private savings.

Figure 2.11
Average Weekly Work Hours of Persistent Workers* (by Month), 2019 and 2020



* Persistent worker: A person who was not unemployed or temporarily absent due to COVID-19 in the past two years.
SOURCE: Based on Central Bureau of Statistics.

Figure 2.12
Labor Input in 2020 Relative to the Same Month in 2019 (monthly ratio)



SOURCE: Based on Central Bureau of Statistics.

which were the main targets of the restrictions, are characterized by low productivity, or perhaps within each industry the workers with the lowest productivity relative to their colleagues were furloughed. This can be determined using the labor input weighted by the industry's average wage. In this analysis, the work hours of each worker are weighted by the average wage in the industry in which he works rather than by his own wage. Figure 2.12 shows that this curve is almost identical to the productivity-weighted curve. This implies that the difference between the moderate drop in GDP and the large increase in the broad unemployment rate is primarily a result of the restrictions on the specific industries in which wages are low. In other words, it is due to the large number of furloughed workers in close-proximity industries. It can therefore be concluded that there was no general phenomenon in which workers with low productivity (wages) relative to the industry in which they are employed were furloughed. (For more discussion of the wages by industry in the close-proximity industries relative to other industries, see Box 2.1 and Table 5.3.)

Table 2.8
Principal labor market data, 1995–2020^a

	(annual change, percent)					
	1995–2015	2016	2017	2018	2019	2020
Population aged 15+	2.1	2.0	1.9	2.0	2.1	1.9
Labor force participation rate aged 15+ (level)	56.7	64.1	64.0	63.9	63.5	61.8
Employment rate aged 15+ (level)	55.6	61.1	61.3	61.4	61.1	59.1
Unemployment rate aged 15+ (level)	7.8	4.8	4.2	4.0	3.8	4.4
Broad unemployment rate aged 15+ (level) ^b						15.7
Employed persons (Including non-Israelis) ^c	2.7	2.3	2.4	1.7	1.7	-1.9
<i>of which</i> : Employed in the business sector ^c	2.6	2.8	2.2	0.8	1.5	-3.9
Employed in the public services ^c	3.0	1.4	2.8	3.5	2.0	1.9
Employed Israelis aged 15+ who actually worked (were not temporarily absent)	2.7	2.6	3.0	1.6	1.3	-9.4
Total work hours (including non-Israelis)	2.7	3.8	2.2	1.3	0.9	-8.0
<i>of which</i> : Total work hours in the business sector	2.6	4.2	2.0	0.8	1.1	-9.7
Total work hours in the public services	3.2	2.5	2.8	2.9	0.4	-2.2
Hours per employed person (including non-Israelis) (level)	36.7	37.0	36.9	36.7	36.4	34.2
<i>of which</i> : Hours per employed person in the business sector (level)	42.1	42.5	42.4	42.4	42.2	39.6
Hours per employed person in the public services (level)	25.0	25.7	25.7	25.6	25.2	24.2
Employee posts (including non-Israelis)	2.7	3.5	3.3	2.5	2.0	-10.0
<i>of which</i> : Employee posts in the business sector	2.6	3.6	3.0	2.1	1.4	-13.5
Employee posts in the public services	3.1	3.3	3.8	3.4	3.2	-3.2
Job vacancy rate (level)		3.7	3.8	3.7	3.5	2.5
Nominal wage per employee post ^d	3.9 ^e	2.2	3.0	3.5	2.9	6.8
Real wage per employee post ^d	0.9	2.8	2.8	2.7	2.0	7.8

^a Unemployment data in this table are presented for those aged 15+ in accordance with the Central Bureau of Statistics definition.

^b Including the unemployed, those temporarily absent for reasons having to do with COVID-19 (including furloughs), nonparticipants who were dismissed from March 2020 onward, and nonparticipants who stopped working for other reasons or did not work in the past and are interested in working now, but have not looked for work in the past month due to reasons having to do with COVID-19. This figure was defined in 2020 due to the COVID-19 crisis, and is therefore not reported for previous years.

^c The number of employed persons in 2020 includes those temporarily absent from their jobs for reasons having to do with COVID-19.

^d These wage data misrepresent the situation in 2020. The rise in wages in 2020 is mechanical, an effect of furloughing many workers who earned below-average wages. Therefore the average wage in 2020 includes significantly fewer workers than in prior years and their average wage is higher.

^e Between 1995 and 1999, the nominal wage was affected by high inflation, and from 2000, the nominal wage has increased at an average annual rate of 2.5 percent.

SOURCE: Based on Central Bureau of Statistics.

4. SAVINGS, INVESTMENT, AND THE CURRENT ACCOUNT

As mentioned in previous sections, private disposable income rose significantly this year (Table 2.5), and as a result gross private savings increased by 8.6 percent of national income (Table 2.9). There are two possible reasons for the increase in savings. The first is forced saving due to the restrictions imposed as a result of the crisis, as discussed in Section 1 and in the subsection on private consumption in Section 2. Since it was generally believed that the crisis would not continue for an overly long period, it appears that the public waited rather than shifting consumption to the goods and services that were available.

Private saving also increased due to precautionary motives.

The second reason is precautionary saving. The COVID-19 pandemic and the various attempts to deal with it created uncertainty on a number of levels: how long the crisis would last and how it would develop; what the economic fallout would be until the crisis is over; and whether there would be additional lockdowns and when. It is also not known when and how the high level of government expenditure to deal with crisis will be financed. Such a situation can also motivate individuals to save because they know that the repayment of the debt that was increased in order to finance those expenditures may lead to an increase in taxes in the future and/or a reduction in the growth of government services or transfer payments to households (the Ricardian effect). The decline in public savings during the years 2018–19 was accompanied by an increase in private savings. This correlation may signal that there was some Ricardian response to the growing deficit in recent years, and it is therefore probable that part of the increase in private savings in 2020 was due to the same reason.

The high level of government expenditure to deal with the COVID-19 pandemic was reflected in a decline in public savings of 6.4 percent of national income. Total gross national savings rose to its highest rate since 1965: 26.8 percent of national income. Gross investment rose only slightly in 2020, which was due to growth in investment in the inventory of startup companies, which was only the result of a decline in the sales of such companies.²⁵ Since the growth in national savings was greater than the growth in national investment, most of the growth in savings was channeled to investment abroad, which increased the current account surplus from 3.3 percent of national income in 2019 to 5.0 percent in 2020.²⁶

National savings rose while national investment rose only slightly. As a result, the current account surplus increased.

²⁵ Startup companies generally require years of initial development until they produce goods or services, during which they consume inputs. Their yearly output during that time is therefore recorded as an increase in the inventory of work-in-progress in the economy. When such companies are sold (exit), the sales are recorded as a part of exports and are subtracted from the inventory of work-in-progress of startup companies in the economy. In other words, sales of startup companies appear as a disinvestment in the economy's inventory of such companies. If the sales of startup companies do not keep pace with the growth of their output (which is particularly rapid during the companies' development stage), then total investment in the inventory of work-in-progress of startup companies in the economy will increase.

²⁶ This surplus has varied in the vicinity of 3 percent of national income in recent years.

a. The current account

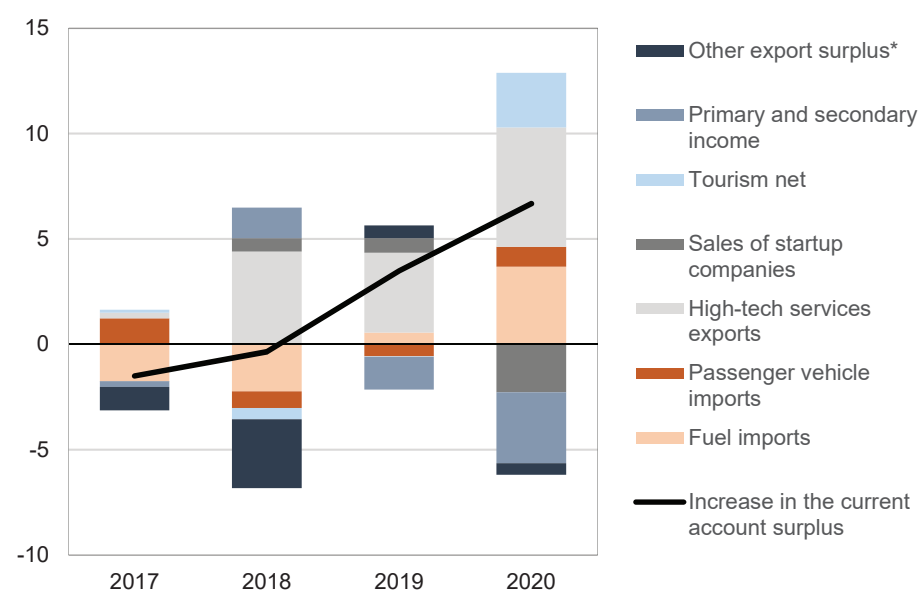
The current account surplus was larger than in 2019.

The drop in energy and vehicle imports together with lower oil prices raised the current account surplus.

The current account surplus was about \$20 billion in 2020, which is about \$6.7 billion more than in 2019 (Figure 2.13).²⁷ This increase was the result of a number of developments, most of which are related to the global COVID-19 crisis: the improvement in the terms of trade as a result of the drop in oil prices, the drop in distance traveled, the closing of the skies, and the continuing high level of success of Israeli high-tech services.

The monetary value of energy imports fell by \$3.7 billion in 2020. Most of that (\$2.5 billion) was the result of the fall in oil prices at the beginning of the crisis. Later on, that was accompanied by a drop in distance traveled, which led to a reduction in the imported quantity of fuel. In parallel, passenger vehicle imports declined by \$0.9 billion, and the import of commercial vehicles also fell, though to a lesser extent. The price effect of the drop in oil prices was somewhat offset by the weakness of the dollar worldwide, particularly against the euro. This worked to worsen Israel's terms of trade since Israel's exports are biased toward the US more than its imports. According to estimates based on the statistical relationship between changes in the exchange rate and changes in the terms of trade, the changes in the exchange rate contributed

Figure 2.13
Change in the Current Account Surplus, and Contribution of the Main Components, 2017–20 (\$ billion)



* Excluding components listed separately.

SOURCE: Based on Central Bureau of Statistics (balance of payments and foreign trade).

²⁷ The discussion of the current account is in dollar terms in order to neutralize the effect of the shekel's appreciation on movements in the account. As an approximation, every billion dollars is equal to 0.25 percent of national income.

0.6 percentage points to the worsening of Israel's terms of trade, which reduced the current account surplus by about \$0.8 billion.

One of the main events that affected Israel's balance of payments was the almost total closing of the skies to incoming and outgoing tourism. This reduced the inflow and outflow of tourism to almost zero starting in the second quarter of the year, and directly contributed about \$2.6 billion to the increase in the current account surplus, alongside a reduction of about one percent in GDP.²⁸ The contribution to the current account surplus is a result of the fact that Israel's import of tourism services (\$10.4 billion in 2019) was greater than the income from incoming tourism (\$7.3 billion in 2019). However, the effect of the closing of the skies on GDP in 2020 was dependent on the response of Israeli consumers to the lack of any possibility of going abroad, as described in Section 2 on private consumption, and particularly on the degree to which they substituted a local holiday or purchased some other good as a substitute for a holiday abroad.

The closing of the skies contributed to the increase in the current account surplus, due to the surplus in tourism imports over tourism exports prior to the crisis.

Table 2.9
Savings, investment and the current account, 1995–2020

	(percentage of national income)					
	1995–2015	2016	2017	2018	2019	2020
Gross national savings	22.1	24.3	24.0	23.9	24.4	26.6
<i>of which</i> : Public	-1.3	1.0	1.2	-0.8	-1.2	-7.6
Private	23.5	23.3	22.8	24.7	25.6	34.2
Gross investment	21.2	20.7	21.2	21.3	21.0	21.6
<i>of which</i> : In principal industries	14.6	13.6	13.6	14.5	14.2	14.3
<i>of which</i> : General government's investments ^a	3.8	3.4	3.7	3.9	3.8	4.8
In housing	5.9	6.6	6.7	6.5	6.4	6.1
In inventory	0.7	0.5	0.8	0.3	0.5	1.3
Net current account	0.9	3.6	2.9	2.6	3.3	5.0
<i>of which</i> : Balance of goods and services	-1.0	1.7	1.2	0.6	1.8	4.3
Net income account	-2.5	-0.9	-0.5	-0.1	-0.5	-1.1
Net current transfers	3.5	2.6	2.0	1.8	1.7	1.5
Terms of trade ^b	0.1	3.2	-1.6	-3.0	3.9	1.0
Real effective exchange rate ^{b,c}	0.0 ^d	-1.5	-4.4	2.1	-2.5	-3.1

^a Including investment grants.

^b Rate of change in annual terms, percent.

^c Adjusted to the Consumer Price Index. An increase refers to depreciation.

^d The figure relates to the years 1999–2015.

SOURCE: Based on Central Bureau of Statistics.

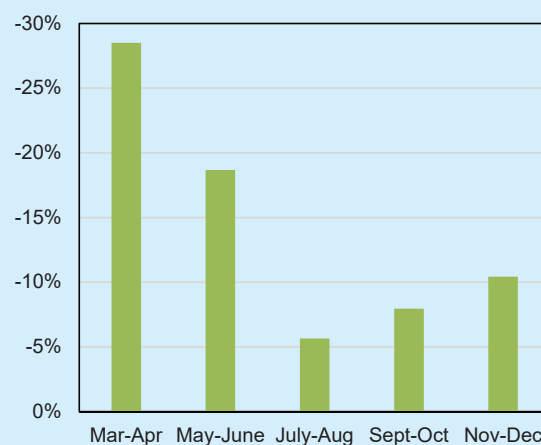
²⁸ As a result of the approximately NIS 20 billion decline in the tourism exports, on the assumption of about 75 percent value added in tourism.

Box 2.3**Developments in the Construction Industry****a. The production chain in the construction industry**

Construction activity slowed due to the COVID-19 crisis and its resulting uncertainty and lockdowns, yet the industry's exclusion from the lockdowns—a step that the Bank of Israel considered of importance throughout the crisis—helped mitigate the adverse effects of the crisis. In 2020, construction industry output declined by approximately 4.3 percent, total investment declined by approximately 4.2 percent, and labor inputs¹ declined by approximately 14 percent. Residential building starts in 2020 were approximately 3.5 percent lower than in the previous year.² The decline in the number of employees in the construction industry was especially steep around the first lockdown. It moderated in July–August to approximately 5.6 percent, and then worsened again (all figures are in comparison with the corresponding periods of the previous year, see Figure 1). According to the real-time survey conducted by the Central Bureau of Statistics (Wave 7 conducted in July 2020), the key cause of the impact on construction industry activity was a drop in demand.³

Uncertainty concerning the future of income-producing real estate as a result of the COVID-19 crisis and the increasing scope of work from home and remote shopping adversely affected nonresidential construction. After an increase of approximately 40 percent in annual nonresidential building starts between 2016 and 2019—especially construction for commerce, hospitality, and offices—the number of building starts began to decline when the crisis began in 2020, with nonresidential construction declining by approximately 30 percent in the second and third quarters (compared with the corresponding quarters of 2019). The main decline—

Figure 1
Rate of Decline in the Number of Employed People Relative to the Corresponding Period Last Year, Construction Industry (original data, prime working ages)



SOURCE: Central Bureau of Statistics Labor Force Survey and Bank of Israel Research Department Analysis.

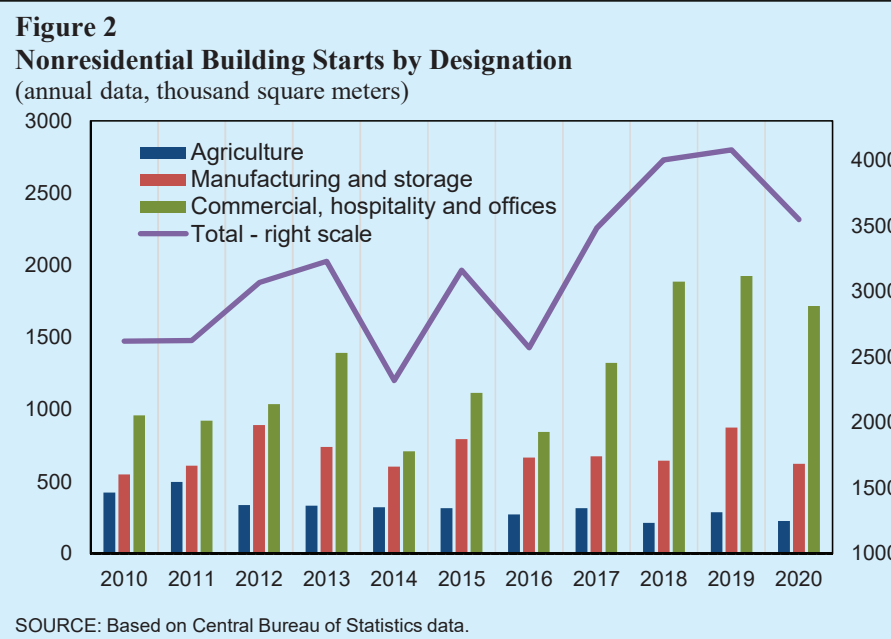
¹ Total work hours.

² Because the building start data published by the CBS are revised upward, the decline is apparently smaller.

³ Central Bureau of Statistics surveys do not distinguish between companies operating in residential construction and companies in nonresidential construction (or companies operating in both).

approximately 40 percent—was in building starts for commercial, hospitality, and office spaces.⁴ Building starts recovered in the fourth quarter, and the annual decline compared to 2019 was approximately 13 percent (Figure 2). The impact on nonresidential construction was also reflected in a decline in income-producing real estate companies' market cap, especially those focusing on commercial properties.⁵ The decline reached a maximum of approximately 40 percent, but this trend changed in October, and the decline at the end of December amounted to 20 percent.

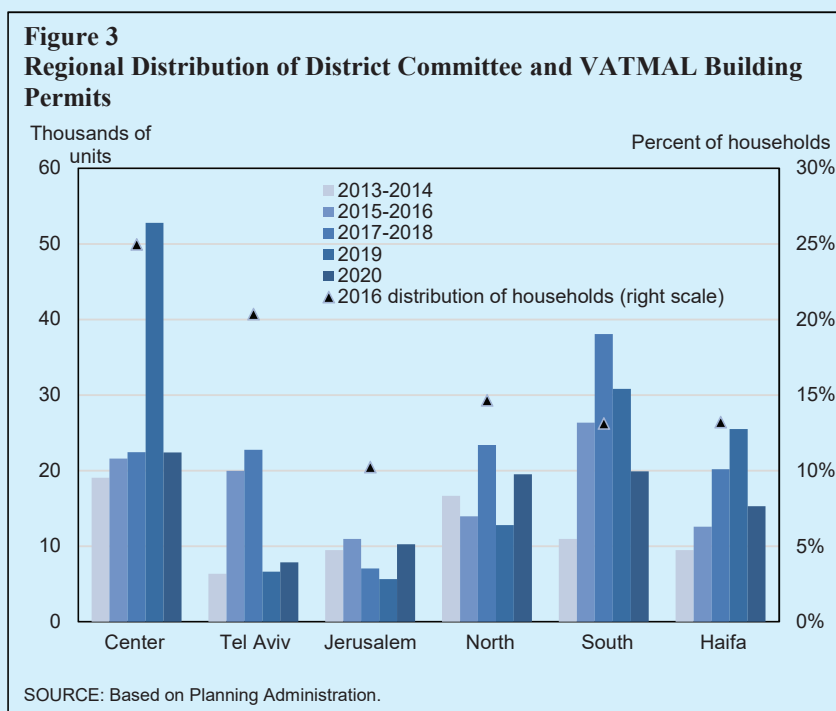
Multiple indicators of residential construction activity pointed to a slowdown that began with the inception of the crisis and tapered off in the fourth quarter. The number of housing starts in 2020 was about 3.5 percent lower than in 2019, mainly due to a 20 percent decline in the second quarter. The number of housing completions in 2020 was 8 percent lower than in 2019, and investment in residential construction declined in that period by approximately 7.7 percent. In 2020, district planning and building committee approvals of plans, as well as the marketing of land by the Israel Land Authority, declined. The production process of homes is lengthy, and comprises multiple stages. As such, the delays in various stages in the production chain this year, resulting from the crisis, may generate future effects. The following is a discussion of the major stages of this process and the changes in them that resulted from the COVID-19 crisis.



⁴ Nonresidential building completions, which are largely affected by building starts in previous years, increased by 3 percent in 2020, and investment in nonresidential construction increased by approximately 0.5 percent.

⁵ See Box “The Decline in Value of Commercial Real Estate Companies in View of the COVID-19 Crisis” in the Bank of Israel’s *Financial Stability Report* for the Second Half of 2020.

1. Approval of plans by district committees and the National Planning and Building Committee for Priority Housing Areas (VATMAL):⁶ In 2020, the district committees and VATMAL approved a total of approximately 95,000 housing units—a decline of approximately 30 percent (compared with 2017–2019). The number of approved housing units declined in the Haifa, center, and southern districts (Figure 3). The share of high-demand areas in committee approvals remained relatively stable, although there was a marked decline in approvals in the center district, following an exceptionally high number of approvals in 2019.⁷ The slowdown in planning committees' activity during the COVID-19 crisis⁸ was apparently due to logistical difficulties in managing planning procedures under the imposed health-related restrictions, and specifically the social distancing restrictions that prevented committees from convening for meetings and discussions. However, as the crisis continued, the transition to online discussions seemed to considerably reduce the adverse effects on the district committees' activity.

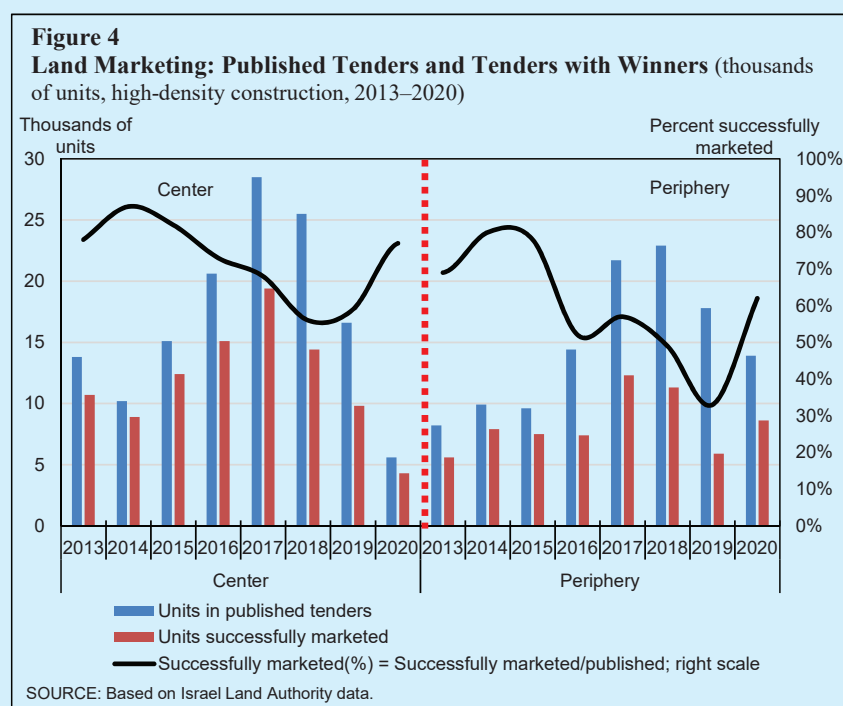


⁶ The medium- and long-term planning inventory is created, and its spatial distribution is determined, at this stage. The National Planning and Building Committee for Priority Housing Areas (VATMAL) was scheduled to suspend its operations in July 2019, but its operations were extended several times, and it may continue to decide on urban renewal and other unique projects.

⁷ The National Housing Directorate operated between 2016 and 2019. This agency was established in 2015 to coordinate the activities of the relevant governmental and nongovernmental agencies in order to promote progress in housing plans.

⁸ According to "Activities of Planning and Construction Institutions during the COVID-19 Crisis," published by the Knesset Research and Information Center, the number of district committee hearings in March–April declined by approximately 60 percent, and the number of housing units approved by district committees during this period declined by approximately 50 percent.

2. Marketing of land by the Israel Land Authority: In 2020, the number of housing units that were successfully marketed in tenders as a share of total published tenders increased, both in the country's center and in its periphery. In the periphery, the share of successfully marketed units was lower than in the center, yet the number of successfully marketed units was higher than in 2019 (Figure 4). In 2020, the Israel Land Authority marketed land for the construction of only about 14,200 units⁹, compared to 20,000 in 2019, which continued the downward trend that began the previous year (Figure 4). Due to the outbreak of COVID-19 and the first lockdown, the Israel Land Authority was forced to postpone the closing dates of several tenders this year. Delays in developing and approving the new "Reduced Price Housing" program to replace the "Buyer's Price" program, and in the conversion of outstanding Buyer's Price tenders to tenders in the new program, also contributed to the decline in the number of tenders issued.



3. Building permits issued by local committees: Figures on permit issues (for residential construction) in the second and third quarters were stable relative to the corresponding period of 2019, and indicate that COVID-19 restrictions had no significant impact on the local committees' licensing activities.¹⁰

⁹ High density construction, tenders that were awarded to a winner.

¹⁰ Unlike the other stages, which entail a significant financial outlay, the cost of obtaining a building permit is relatively low and therefore, despite the uncertainty, the issuing of building permits did not constitute a tangible risk for construction companies.

Possibly the transition to online permit issuing (through the Accessible Licensing system) before the outbreak of the pandemic prevented disruptions to the committees' licensing activities¹¹, as did the absence of permit application handling costs for developers after applications are submitted. Approximately 51,700 permits were issued in 2020, reflecting a decline of approximately 8 percent compared with 2019, which was due to the approximately 24 percent decline in the number of permits issued in the fourth quarter.¹²

4. Construction: The final stage in the housing production chain. The exclusion of the construction industry from the requirements to reduce economic activity reduced the pandemic's effects, although activity slowed down and the number of employees in the industry declined during the lockdowns.¹³ The number of building starts in 2020 was approximately 51,600, a decline of approximately 3.5 percent compared with 2019.¹⁴ The development of building starts was uneven over the year (Table 1). The main decline occurred in the second quarter, concurrent with the outbreak of COVID-19. In that quarter, the number of building starts declined by approximately 20 percent. The decline tapered off to approximately 12 percent in the third quarter, while there was stability in the fourth quarter (all quarters compared with the corresponding quarters of the previous year).

Table 1

Building starts and completions, and number of employees in the construction industry

Construction industry	Israeli workers (thousands)	Foreign workers (thousands)	Palestinian workers ^a (thousands)	Building starts (thousands of units)	Building completions (thousands of units)
2019:Q4	195	20	68	14	11.9
2020:Q1	189	19	62	15	12.2
2020:Q2	155	18	37	10.4	12.9
2020:Q3	175	18	58	12	10.5
2020:Q4	170	19	66	14.2	12.2

^a Palestinian workers with permits.

SOURCE: Based on Central Bureau of Statistics.

¹¹ According to the publication "Activities of Planning and Construction Institutions During the COVID-19 Crisis," published by the Knesset Research and Information Center, the number of building plans approved by local committees declined by approximately 30 percent in March-April, compared to a decline of approximately 50 percent in the number of plans approved by district committees.

¹² A record high of approximately 16,800 building permits were issued in the fourth quarter of 2019, which also contributed to the anomalous decline in the fourth quarter of 2020 compared with the corresponding period of the previous year.

¹³ See Box "Effects of the COVID-19 Crisis on the Construction Sector" in the *Financial Stability Report* for the First Half of 2020.

¹⁴ And the effective decline was even smaller due to expectations of an upward revision in the number of building starts.

In 2020 construction was completed on approximately 47,900 apartments, reflecting a decline of approximately 8 percent from 2019. The main cause of this decline is the increased duration of the construction process¹⁵, which increased from an average of 29.5 months in 2019 to 33.3 months in the fourth quarter of 2020. Delays in construction were caused by COVID-19-related restrictions. Although the construction industry was excluded from the requirements to reduce economic activity, work did not continue as usual. During the lockdowns, the number of Palestinian workers in the construction industry was lower than the quota, especially during the first lockdown in April, apparently due to employment-related restrictions.¹⁶ Table 1 shows the number of employees in the construction industry alongside the number of building starts and completions. In contrast to building starts, which are largely affected by the expected demand for apartments, the number of building completions is a function of the number of building starts two or three years earlier, and is therefore affected by labor availability. It therefore appears that the main cause of the significant decline in building starts at the beginning of the crisis was the uncertainty regarding the implications of the crisis in general, and specifically its implications on the demand for apartments.

Although the slowdown in building starts eased, the decline in the sale of land for residential construction, which began in 2019 and continued through 2020, may contribute to a decline in building starts in the next two years.¹⁷ This is a challenge in view of the need to satisfy demand and prevent a continued rise in housing prices, which was renewed following a decline in prices in 2018.

b. Transactions and prices in the housing market

The trends that characterized 2019—a high level of activity that resulted from the continued sales in Buyer's Price projects and from the same factors that had encouraged demand in the market since 2015¹⁸ (Table 2)—continued in January and February 2020. From March onward, the crisis became the dominant factor affecting the housing market.

Since the outbreak of the crisis the number of sales reflected high volatility, which corresponded to the timing of the lockdowns: declines during lockdowns, which were almost completely offset by increases in the periods between lockdowns. A total of approximately 94,000 dwellings were

¹⁵ Another factor that apparently contributed to the decline in building completions is the approximately 4 percent decline in building starts in 2018.

¹⁶ For example, the requirement that Palestinian laborers in Israel not return to their homes in the Palestinian Authority for several weeks, and the restrictions that permit entry to Israel at specific times. These requirements were designed to halt the spread of COVID-19 infection between the Palestinian Authority and Israel. For additional information see Hagay Atkes, "Palestinian Employment in the Israeli Economy During the COVID-19 Crisis,"

<https://www.boi.org.il/he/NewsAndPublications/PressReleases/Pages/29-12-20.aspx>

¹⁷ It takes an average of two years to market the land, have the local committee issue a building permit, and start construction. (For additional information, see Chapter 8 of the Bank of Israel's *Annual Report* for 2019).

¹⁸ An increase in the prime-working-age population (25–64), an increase in real household income, low unemployment and the low interest rate.

Table 2
Selected Housing Market Data, 2011–2020

	1997–2010 average (unless otherwise noted)										2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Demand factors																				
Population aged 25–64 (change in thousands) ^a																				
Average real wage per Israeli employee post (rate of change)																				
	71.8	60.3	39.8	49.3	67.8	51.4	57.6	57.2	54.8	56.4	63.8									
	0.93	0.4	0.6	1.1	1.3	2.8	2.9	2.9	2.7	2.1	1.6 ^f									
Average real net household income (rate of change)																				
	2.7	-0.2	3.5	4.1	3.1	2.5	2.7	4.6	3.5	3.1										
Unemployment rate among those aged 25–64 (percent)																				
	9.1	6.3	5.9	5.4	5.0	4.5	4.1	3.7	3.5	3.4	4.3									
Weighted real interest rate on new mortgages ^b																				
	3.4	2.5	2.2	1.6	1.3	1.0	1.5	1.9	1.7	1.5	1.0									
Real per capita GDP (rate of change)																				
	1.6	2.8	0.7	2.4	2.0	0.2	1.8	1.6	1.5	1.5	-4.1									
Rate of those planning to purchase a dwelling in the next 12 months ^c (percent)																				
		6.6	7.7	7.4	7.3	7.0	7.6	7.3	8.4	8.3	7.8									
Supply factors																				
Building starts ^d (thousands of units)																				
	36.8	46.6	43.5	47.9	47.7	53.7	56.5	55.1	53.6	53.5	51.6									
Building completions ^d (thousands of units)																				
	39.7	34.1	37.4	42.5	44.7	43.9	46.1	48.5	50.6	52.1	47.9									
Stock of dwellings under active construction (end of year, thousands of units)																				
	69.4	83.2	89.0	94.1	96.9	105.7	115.3	119.9	121.3	122.8	126.8									
Building permits ^d (thousands of units)																				
	29.3	50.3	45.5	50.1	47.6	55.3	54.1	55.9	51.9	55.5	51.7									
Investment in residential construction (rate of change)																				
	0.04	9.7	6.8	5.3	6.5	0.2	9.1	4.4	-1.1	2.0	-7.7									
Outcome variables																				
Housing transactions ^e (thousands)																				
	92.4	86.5	102.7	114.4	99.6	121.1	112.0	101.5	102.6	110.0	107.0									
New dwellings sold (thousands)																				
	17.6	19.5	22.5	24.3	23.5	31.7	29.7	24.8	22.6	33.8	39.4									
Unsold dwellings where construction has started (thousands)																				
	14.7 ^g	20.3	20.2	19.5	18.3	18.9	19.8	18.5	18.3	18.0	13.9									
Home prices (real rate of change)																				
	-0.23	1.8	6.9	5.4	4.5	9.0	5.9	1.0	-1.0	2.6	4.8									
Households that do not own a home (percentage of population)																				
	28.6 ^h	27.6	28.0	27.9	27.9	27.5	27.4	28.2	27.5											
Households that own more than one home (percentage of population)																				
	3.3 ^h	6.4	7.9	8.4	9.1	9.9	9.7	10.0	10.1											
Length of time to sell a dwelling (days)																				
				167.7	203.5	189.8	194.4	173.4	220.5	218.3	205.0									
Percentage of homes purchased for investment (as a share of total purchases)																				
		23.8	22.2	22.6	25.0	24.9	18.7	16.9	16.5	15.5	16.9									

^aThe break in the series of population aged 25–64 is due to changes in the census that was conducted in 2008.

^bThe weighted real interest rate on mortgages is calculated assuming an annual inflation rate of 2 percent.

^cThe rate of those planning to purchase a dwelling, from the Consumer Confidence Index, Central Bureau of Statistics.

^dInterim data.

^eThe number of residential real estate transactions is based on purchase tax and betterment tax data.

^fThe change in the average real wage is presented net of the effect of the change in the composition of employees. (See Chapter 5 for more information). The real wage with the effect increased by about 8.5 percent, which does not reflect the change in wage of individuals who were employed in 2019 and remained employed in 2020.

^g2004–2010 average.

^h2003–2010 average.

SOURCE: Central Bureau of Statistics, Ministry of Construction and Housing, Israel Tax Authority, and Bank of Israel.

sold in 2020, which is 4 percent lower than in 2019¹⁹, and approximately 40 percent of the sales in 2020 were of new dwellings, similar to their share in 2019.

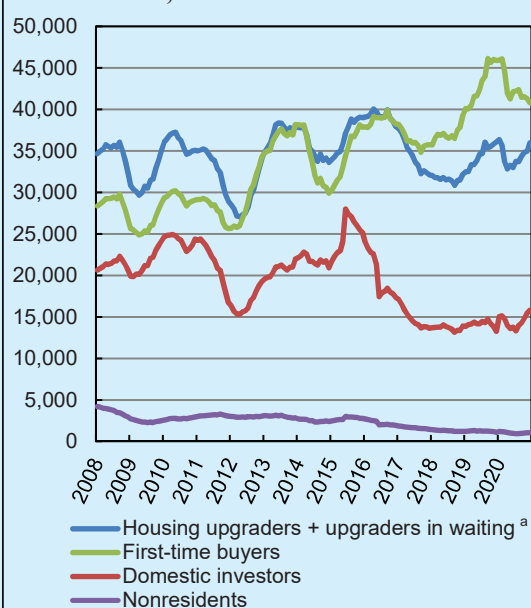
The decline in the number of sales was mainly due to the decline in first-time buyers, which dropped by approximately 4,500 (10 percent) from 2019, largely due to the decline in the number of Buyer's Price sales, which declined by 4,000 compared with 2019. Buyer's Price marketing assemblies could not be held in their normal format due to the outbreak of the pandemic, and were moved online after a short time. The number of assembly participants declined as a result, which may have contributed to the decline in the number of sales in the second quarter. This effect dissipated in the second half of 2020. Another possible reason for the decline in the number of sales in Buyer's Price projects is that the proportion of households with at least one partner on unpaid leave was higher among Buyer's Price buyers than among first-time home-buyers in general, due to their typically younger age relative to all first-time home-buyers.²⁰

A total of approximately 17,000 dwellings were purchased by investors, and the number of purchases by local investors increased toward the end of the year after a cut in purchase tax in late July (Figure 5). In December, investors' purchases slightly exceeded investors' sales, for the first time since 2016.

The rise in home prices was renewed in 2019–20, after declining in 2018, and in 2020 home prices increased by 4 percent. The development of home prices is presented in Figure 6.

The index of new home prices increased by approximately 3.1 percent, while the share of government-supported sales declined moderately.

Figure 5
Annual Transactions by Type of Transaction, 2008–2020



^a Housing upgraders in waiting are households that purchased a new dwelling before selling their previous one.

SOURCE: Based on Israel Tax Authority (Carman file).

¹⁹ Sales of 1.5–5-room apartments, according to the Karmen database.

²⁰ According to the publication by the Chief Economist, “First-Time Home Buyers who were Furloughed or Dismissed at the Outbreak of the COVID-19 Pandemic”. Similar results were obtained in an age-based analysis of Buyer's Price purchasers and those in the open market, which the Bank of Israel conducted by merging the sales file with data from the Karmen and Shaam databases. For a discussion of the association between employee age and risk of being furloughed, see Chapter 5.

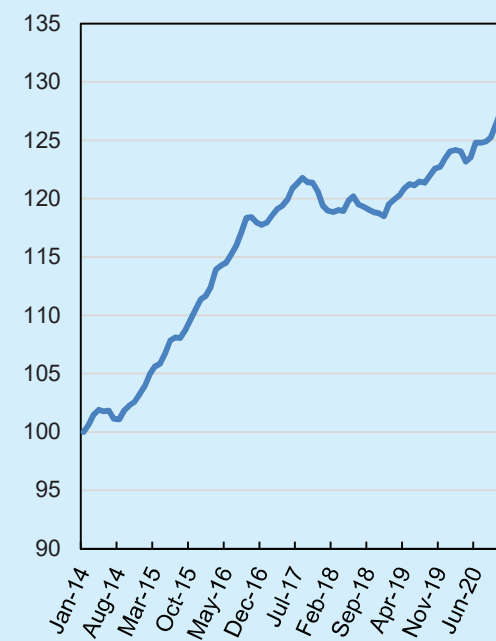
c. The Buyer's Price and Reduced Price Housing programs

Following the continuing rise in housing prices between 2008 and 2015, solving the housing crisis became one of the government's main goals, and it adopted a series of measures to expand the housing supply and reduce housing costs. A key component was the implementation of the Buyer's Price program in late 2015, designed to assist households that had no rights to property in the past six years to purchase an apartment.²¹ The program operated from 2015 to 2020, when it was replaced by the Reduced Price Housing program, which was approved in December 2020.

Of approximately 76,000 households who won the option of purchasing an apartment in the Buyer's Price program²², approximately 50,000 exercised their option and purchased an apartment by the end of 2020. Approximately 25 percent of all first-time home purchases between 2016 and 2020 were made through the Buyer's Price program. Approximately 26,000 households who won an option to purchase have yet to reach the purchase stage.²³ As such, although the program is no longer in operation, approximately 20,000 households are expected to exercise their right to purchase an apartment in the program.

In addition to the Buyer's Price program, the government also took steps to increase the supply side. One of these steps was a significant increase in land marketing tenders by the Israel Land Authority (Figure 3), which allocated the majority of state lands zoned for high-rise construction to the Buyer's Price program track. As development of Buyer's Price projects progressed, the number of building starts stemming from Buyer's Price projects increased, so that they accounted for approximately 30 percent of all building starts in 2020.

Figure 6
Index of Home Prices, January 2014–December 2020



SOURCE: Central Bureau of Statistics.

²¹ Beginning from 2018, this period was shortened to three years.

²² Based on weekly data on the program, published on the Ministry of Housing website.

²³ The calculation is based on weekly data on the program (number of lottery winners) published on the Ministry of Housing website, and on the number of sales in the program.

Subsidies granted to households under the program are not uniform. The discount reflected in the price varies from one project to another and is frequently more significant in high-demand areas than in the periphery.²⁴ The program, which also increased the housing supply in the periphery, significantly reduced the housing shortage in those areas and satisfied the demand, yet demand in the center of the country remains high and the housing shortage remains significant.²⁵ In 2017-18, concurrent with the operation of this program, housing prices rose more moderately, and in 2018 they even declined. In 2019-20, however, the increase in prices was renewed, reaching an annual rate of 4 percent.

According to the government's financial statements, the program cost approximately NIS 9.3 billion between 2015 and March 31, 2020.²⁶ Approximately two thirds of the cost reflects a loss of revenue due to discounted land prices. The final cost of the program is expected to exceed NIS 10 billion.

The Ministry of Housing's Reduced Price Housing program was approved in early December 2020²⁷ to replace the Buyer's Price program, and includes several modifications based on the experience accumulated in the Buyer's Price program. By early January 2021, approximately 4,200 housing units were marketed in the new program. Several tenders closed in December and others will close subsequently. A comparison of the two programs indicates:

- (a) The terms of eligibility in the Reduced Price Housing program are very similar to those in the Buyer's Price program. Eligible Buyer's Price purchasers may apply to Reduced Price project lotteries.
- (b) The Buyer's Price program included a guaranteed minimum discount of NIS 200,000 per apartment. The Reduced Price Housing program includes no such guarantee of a minimum discount.
- (c) The Buyer's Price projects included the marketing of projects nationwide based on a uniform marketing method: The price of the land was determined in advance by the Israel Land Authority (land was subsidized) and contractors competed over the sales price per square meter in the future

²⁴ According to the Survey of the Residential Real Estate Industry by the Chief Economist Division in the Ministry of Finance, published in December 2018, apartments in high-demand areas were purchased at a discount of approximately 30 percent compared to apartments sold on the free market, while the discount in the periphery was only 7 percent. An analysis conducted by the Bank of Israel based on Buyer's Price sales until August 2020 indicates a similar discount differential. The analysis also shows that apartments purchased in the Buyer's Price program are, on average, larger and have more rooms than dwellings purchased by first-time home buyers on the free market, and therefore, the discount is itself skewed downward. Larger discounts emerge when controlling for apartment size.

²⁵ The demand for apartments in Buyer's Price projects in the periphery was lower than the demand in the center, both because the discounts reflected in the prices in high-demand areas were more substantial than in the periphery, and because the demand for housing in the center is higher than the demand in the periphery. This may be inferred from the figures on (a) the ratio between the number of lottery applicants and the number of apartments available in the lotteries; (b) the number of apartments remaining unsold in the program; and (c) the success rate of the land tenders. For additional information see Chapter 9 in the Bank of Israel *Annual Report* for 2018 and Chapter 8 in the *Annual Report* for 2019.

²⁶ Of that, approximately NIS 7 billion was lost revenue in respect of discounts on land, and approximately NIS 2.3 billion was lost in additional subsidies and grants to buyers, not including the cost of State-issued guarantees in the program and the expenses in its umbrella agreements.

²⁷ In September the program was approved by the Israel Land Authority, and in early December it was approved by the Minister of Finance.

finished project. The tender was awarded to the bidder who offered the lowest sales price. The Reduced Price Housing program divides the country into three regions, with a different marketing method in each. In upscale areas²⁸, no discounts are offered on the land, and the land will be marketed in public tenders to the highest bidder. In high-demand areas, Reduced Price Housing tenders have two stages: the minimum and maximum sales prices per square meter are pre-determined, and in the first stage, developers submit their bids for the price per square meter. In the second stage of the tender, the developers with the lowest price bids (in the tenders that were conducted until now, the lowest bids were equal to the minimum price set in the tender) offer an additional amount for the land, above the discounted price that the Israel Land Authority offered in the tender. In the periphery, the state determines the price for the land and the sales price per square meter of the apartments, and the developers compete over the additional amount they offer for development costs.

- (d) Land prices in the Buyer's Price programs were a function of appraisals prepared by the Government Appraiser in 2015, which have not been revised since. As prices rose over time, the appraisal-based prices occasionally represented significant discounts. In the Reduced Price Housing program, discounts on the land price are a function of revised land appraisals, and therefore the discount to eligible buyers is not expected to be on the same scale.
- (e) The mix of apartments defined for Reduced Price Housing projects was modified such that half of the apartments in each project will be sold at market prices.

²⁸ The benchmark price that defines upscale areas, at which land is marketed at market prices, is NIS 20,000–22,000 per sq.m. Examples of cities defined as upscale areas are Tel Aviv, Herzliya, and Ramat Hasharon.

Chapter 3

Monetary Policy and Inflation

- Similar to leading central banks around the world, the Bank of Israel used a series of tools intended to deal with the ramifications of the COVID-19 crisis. Some were new and used for the first time, and some, while used in the past, were implemented on unprecedentedly large scales. These tools were intended to prevent a liquidity crunch at the beginning of the crisis and to ease credit conditions in the economy by lowering the medium- and long-term interest rates in the market. Beyond lowering the interest rate to 0.1 percent, these tools included the purchase of government and corporate bonds in the secondary market; repo transactions; shekel-dollar swaps with banking institutions; and the provision of long-term loans to the banking system at 0.1 percent interest, and thereafter at -0.1 percent interest, against low-interest loans that the banks would provide to small and micro businesses. This latter measure was conditioned on lowering the interest rate to borrowers.
- An empirical examination shows that the Bank of Israel's measures, mainly the March 23 announcement itself of the government bond purchasing program, lowered yields on government bonds, provided liquidity to the government bond market, and lowered the liquidity premium.
- The Consumer Price Index declined by 0.7 percent in 2020, reflecting a significant decline in inflation relative to previous years, mainly as a result of the COVID-19 crisis' impact on economic activity in Israel and abroad.
- The main forces working to lower inflation included the declines in global energy and food prices and in activity and demand in the economy—factors that are directly linked to the COVID-19 crisis. Other factors contributing to the decline in inflation were the moderate decline of home rental prices, also in view of the crisis, and the appreciation of the shekel.
- Despite the sharp drop in estimated one- and two-year inflation expectations during the year, estimated five-year forward expectations in five years derived from the capital market remained stable near the center of the target range throughout the year—evidence that the inflation target has maintained its credibility.
- The shekel appreciated by 5.5 percent in terms of the nominal effective exchange rate in 2020. The appreciation was supported by the weakening of the US dollar worldwide, fundamental economic factors including the increase in the current account surplus, and the decline in Israel's risk premium.
- The Bank of Israel signaled to the market at the beginning of 2020 that it would continue intervening in the market if its assessment was that the shekel's appreciation was due to financial factors. During the year, it purchased \$21.2 billion in foreign exchange.
- The monetary aggregates increased because of the increase in the public's demand for liquidity.

1. MONETARY POLICY

a. Monetary policy measures adopted in 2020

The COVID-19 crisis generated an economic crisis that threatened to spill over into a financial crisis. In 2020, the Bank of Israel adopted several measures—some of which were utilized for the first time, and some of which, while having been used in the past, were implemented to unprecedented scales¹—in order to prevent a financial crisis and ease the terms of credit for the public and businesses. The amount is expected to increase due to additional commitments that the Bank of Israel took on, such as continued government bond purchases.

Over the course of 2020, and particularly during the initial weeks of the pandemic, the Bank of Israel worked to maintain the proper functioning of the bond markets. On March 15, the Bank of Israel purchased government bonds in the secondary market, for the first time since 2009, in order to inject liquidity into these markets.

Over the course of 2020, and particularly during the initial weeks of the pandemic, the Bank of Israel worked to maintain the proper functioning of the bond markets. On March 15, the Bank of Israel purchased government bonds in the secondary market, for the first time since 2009, in order to inject liquidity into these markets. The background to the purchases was a rapid increase in yields on the government bond markets, partly as a result of the many withdrawals from mutual funds specializing in government bonds. Contrary to the beginning of the financial crisis in 2008, however, these were joined by a large number of sales of government bonds by the institutional investors in order to obtain liquidity. These sales led to price pressure in the government bond market, which was reflected in an impact on liquidity and sharp price declines in government bonds. As a complementary tool, the Bank of Israel also allowed financial institutions to carry out repo transactions using government bonds as collateral. Further to the measures adopted on March 15, the Bank of Israel announced a further intervention program on March 23—the purchase of government bonds totaling NIS 50 billion in the secondary market. In contrast with the previous program, the Bank this time announced the quantity it was committing to purchase.

The COVID-19 crisis also had an impact on the shekel-dollar exchange rate, as broadly documented in the Financial Stability Report for the second half of 2020. At the beginning of the crisis, there was high demand for dollars on the part of the institutional investors, because they were forced to deposit collateral on foreign stock exchanges (mainly in the US) due to the sharp declines in equity indices. The Bank of Israel therefore supplied them with dollars, on March 16, through swap transactions. On March 18, it expanded this program by enabling longer-term transactions.

At the start of the crisis, the Bank of Israel interest rate was already near zero, at 0.25 percent. The Bank therefore had very little room to maneuver using the monetary interest rate, and as such, it operated through other methods to make it easier for the business sector to obtain credit. First, the government bond purchases in the secondary market, beyond their contribution to financial stability, worked to lower yields, thereby also lowering the interest rates in the economy. In April, the Bank of

¹ In particular, dollar-shekel swap transactions (NIS 7.5 billion), repo transactions as collateral (NIS 1.5 billion), government bond purchases (NIS 41.6 billion), corporate bond purchases (NIS 3.5 billion), and loans to the banking system against the provision of credit to small businesses (NIS 16.3 billion).

Israel lowered the monetary interest rate to 0.1 percent, and also announced a program to provide 3-year loans to the banks at an interest rate of 0.1 percent, which would be conditioned on the provision of credit to small and micro businesses according to defined criteria.

The programs easing the terms of credit in the economy continued throughout 2020. On October 22, the Bank of Israel announced that it would purchase another NIS 35 billion in government bonds. It also announced that it would provide the banks with 4-year loans at a fixed interest rate of -0.1 percent against loans that they would provide small and micro businesses, on condition that the interest on those latter loans would not exceed prime +1.3 percent.² Moreover, since the beginning of the crisis, the Bank of Israel's Banking Supervision Department created various outlines to enable the deferral of mortgage payments, consumer credit, and credit to businesses. The last of these was announced on December 10. For more information on the various Banking Supervision Department outlines, see Chapter 4 of this Report.

As part of the measures to encourage the provision of credit in the economy and strengthen the transmission from monetary policy to the credit market, in 2020 the Bank of Israel intervened in the corporate bond market for the first time. On July 6, the Bank announced that it would purchase NIS 15 billion worth of bonds of companies rated A- and higher. This step was also intended to support the continued proper functioning of the corporate bond market, and came in addition to the measure adopted on April 6 to enable institutional investors to make repo transactions with the Bank of Israel using corporate bonds as collateral.

In 2020, the Bank of Israel markedly increased its interventions in the foreign exchange market, purchasing about during the year due to the continued appreciation of the shekel in terms of the nominal effective exchange rate. In February, in view of the appreciatory trend of the shekel, the Bank of Israel even brought this policy into sharper focus by signaling to the market that it would continue using foreign exchange purchases, in particular if the appreciation would derive from financial factors. At the beginning of the COVID-19 crisis, there was a sharp depreciation of the shekel due to a dollar liquidity crisis, during which the Bank of Israel enabled the supply of dollars to the institutional investors by allowing them to carry out repo transactions with it. The appreciatory trend then resumed, and at a certain point the Bank of Israel resumed its intervention in the foreign exchange market. In January 2021, following the period analyzed in this report, the Bank of Israel announced that during 2021, it would purchase a total of \$30 billion. The real appreciatory trend of the shekel in recent years has been due to fundamental conditions in the economy, such as the increase of the current account surplus by \$6.6 billion relative to 2019, and the decline in the CDS. These will be discussed in greater detail later in this chapter.

In 2020, the Bank of Israel markedly increased its interventions in the foreign exchange market, purchasing about \$21.2 billion during the year due to the continued appreciation of the shekel in terms of the nominal effective exchange rate.

² It should be noted that in parallel to this program, a government program was activated to provide state-backed loans at prime +1.5 percent, meaning a maximum spread of 1.5 percentage points from the prime rate. Since the Bank lowered the costs of financing to the banks by 0.2 percentage points, it required that the spread be lowered by 0.2 percentage points.

b. The Bank of Israel's intervention in the government and corporate bond markets

1. The background to the Bank of Israel's intervention in the government bond market during the year

Similar to the Global Financial Crisis of 2008, the COVID-19 crisis led to sharp volatility in the financial markets. However, at the beginning of the crisis in March 2020, a unique phenomenon was observed in the financial markets in Israel (and abroad) that differentiated it from the beginning of the 2008 crisis (following the fall of Lehman Brothers)—a sharp decline in both equity prices and government bond prices at the same time.³ Crisis periods in the capital markets are generally typified by declines in equity prices and increases in government bond prices, because during a crisis, investors want to rid themselves of risky assets and move to solid assets—a phenomenon that is documented in the literature and referred to as a “flight to safety”.⁴

So what is the explanation for the sharp declines in government bond prices in Israel in March in parallel with the decline in equity prices? One of the reasons is the sales of government bonds by institutional investors, particularly mutual funds. In March 2020, as the virus spread in Israel and worldwide, there was a massive departure of money from the mutual funds in all channels.⁵ The institutional investors, who are part of the “natural” purchasers of government bonds, also sold those bonds⁶, thereby creating pressure on prices that worsened with the decline in prices on the market. This was contrary to the way they acted during the 2008 crisis (Figure 3.1).⁷

Contrary to the 2008 crisis, the reason for sales by institutional investors in this case was their increasing exposure to foreign equities—particularly the increase in their investments in foreign equities through investment in futures contracts. The volume of institutional investors' holdings in foreign equities increased from about 5 percent in 2010 to 32 percent in 2020, and the share of futures contracts in the portfolio increased.⁸ Due to their exposure to these contracts, together with the sharp price declines on the stock exchanges around the world, institutional investors had to increase their dollar collateral by large amounts immediately. As such, they were first forced to sell liquid assets such as government bonds, and then immediately convert

³ For instance, at the height of the 2008 crisis, following the fall of Lehman Brothers, the unindexed government bond index in Israel declined by about 1 percent (September 15, 2008 to October 6, 2008) compared with a decline of about 5 percent at the height of the crisis in March 2020 (March 8–22, 2020).

⁴ See, for instance, Baeke, Bekaert, Inghelbrecht, and Wei (2020) “Flights to Safety”, *Review of Financial Studies*, 33(2): 689–746

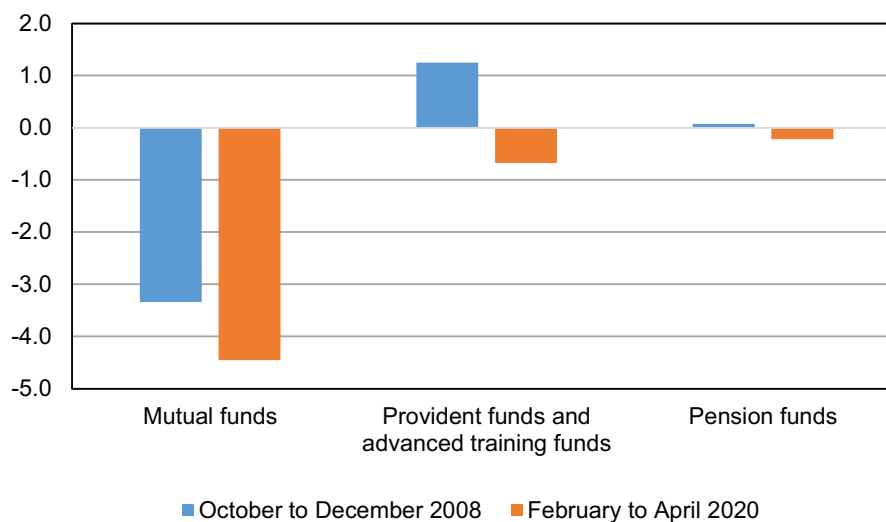
⁵ For more information on this topic, see: <https://www.boi.org.il/en/NewsAndPublications/PressReleases/Pages/3-6-2020A.aspx>

⁶ Banks and hedge funds, as well as private investors and foreign investors, are also active in this market.

⁷ We have data only on net new investments in mutual funds, not on their sales. However, since the mutual funds are very liquid, it is reasonable to assume that the many withdrawals were translated into sales in the market.

⁸ For more information on this topic, see the *Financial Stability Report* for the second half of 2020.

Figure 3.1
Ratio of Net Gov't. Bond Purchases by Institutional Investors and
Net Change in New Investment in Mutual Funds Specializing in
Government Bonds to the Value of the Gov't. Bond Market, 2008
and 2020 (percent)



SOURCE: Bank of Israel.

the proceeds into dollars. This mechanism also led to a dollar liquidity crisis in the swap market (which will be discussed further below.)

The price pressure led to an increase in government bond yields in all ranges during March. On average, yields on the nominal curve increased by 0.7 percent from March 8–22, and yields on the real curve increased by 1.5 percent. The increase in yields was accompanied by increases in many indices, such as bid/ask spreads and intraday price volatility, indicating declines in liquidity on the bond markets.

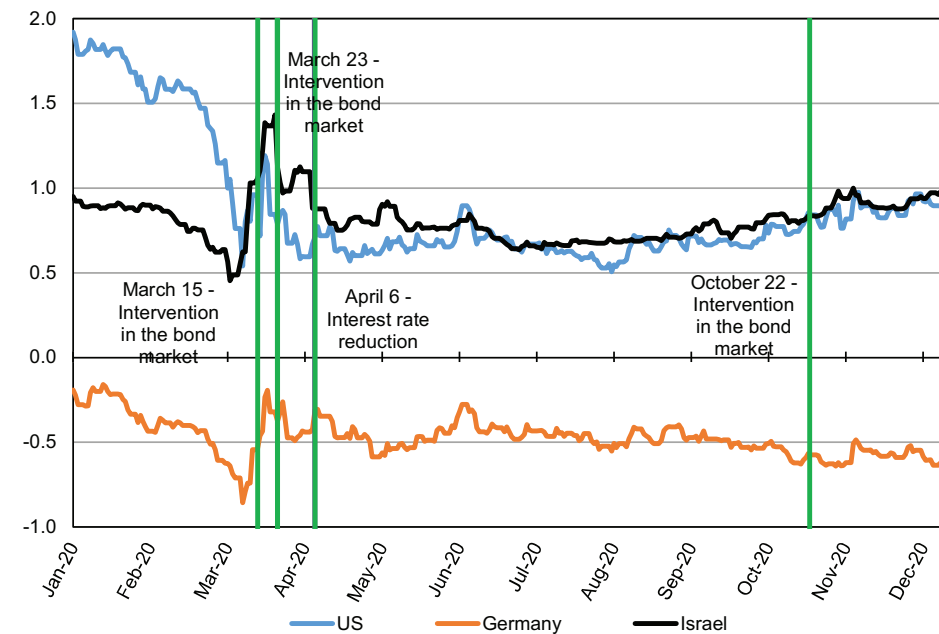
It should be emphasized that we cannot attribute the entire increase in yields in Israel during March only to the price pressure from mutual funds and institutional investors. First, in view of the government discussions regarding the use of assistance programs due to the crisis, there were growing assessments in the markets that the deficit would increase, and as empirical work by Brender and Ribon (2015)⁹ shows, increasing the deficit raises yields in the government bond market. Moreover, since Israel is a small and open economy, global yields have a substantial impact on yields in Israel (which is discussed further in Section F). Figure 3.7 shows that yields around

Price pressure by investment houses led to an increase in government bond yields in all ranges during March.

⁹ Adi Brender and Sigal Ribon (2015). “The Effect of Fiscal and Monetary Policies and the Global Economy on Real Yields of Israel Government Bonds”, Bank of Israel Research Department Discussion Papers Series 2015.02.

the world increased during the period (March 15) and contributed to the increase in yields in Israel.

Figure 3.2
10-Year Government Bond Yields—Israel, Germany, and US, January–December 2020 (percent)



SOURCE: Bank of Israel.

2. The Bank of Israel's intervention in the government and corporate bond markets

Following the Global Financial Crisis of 2008, a vast theoretical literature developed, discussing the mechanisms that enable a central bank to influence yields. Box 3.2 of this chapter (“Quantitative Easing – Central Bank Intervention in the Government Bond Market”) outlines the mechanisms through which the Bank of Israel’s announcement regarding intervention in the government bond market, and their actual purchases, are expected to influence yields. This section provides a detailed description of the Bank of Israel’s measures in the bond markets and their results—particularly the effect of its intervention on bond yields. The following section presents a precise examination of the channels through which the Bank of Israel influences bond yields, in view of the theoretical discussion in Box 3.2.

As stated, the government bond market was in the midst of a liquidity crisis with an increase in yields in March 2020. Government bonds are an important financial asset, because they serve investors as an indicator of the risk-free interest rate in the pricing of financial assets in the market. (The investors add a risk adjustment to this interest rate.) As such, they affect the prices of all financial assets in the market. This is

The government bond market was in the midst of a liquidity crisis with an increase in yields in March 2020.

one of the reasons why the Bank of Israel intervened in the government bond market on March 15, for the first time since 2009.

In order to provide liquidity to the government bond market, the Bank of Israel took two complementary steps. It purchased government bonds at all terms to maturity, and it made repo transactions with financial institutions allowing them to borrow money from the Bank of Israel using government bonds as collateral.¹⁰ These two steps were intended to provide liquidity to the bond markets. The first was intended to “absorb” the many sales of government bonds by the mutual funds and institutional investors in the secondary market, and the second was intended to provide the institutional investors with an additional channel through which they could raise liquidity so that they would not need to sell government bonds in the secondary market.

The Bank of Israel’s intervention on March 15 (Figure 3.2) temporarily halted the increase in yields, and an examination of the liquidity indices in the government bond market (spreads, turnover rate, and so forth) indicated a partial improvement.

As a result, on March 23, the Bank of Israel announced a further intervention program, as part of which it would purchase NIS 50 billion of government bonds. The graphs show that yields declined following the announcement.¹¹ The declared aim of the program, beyond providing liquidity, was to serve as a complementary tool to the short-term interest rate. In contrast with the March 15 notice, this time yields declined immediately after the announcement, according to an examination of liquidity indices that showed a significant decline in the cost of liquidity. Other than that, as detailed in the Financial Stability Report for the second half of 2020, the March 23 announcement of the Bank of Israel’s purchasing program also led to a decline in corporate bond spreads in all sectors and at all ratings.

On October 22, after nearly exhausting the program, the Bank of Israel announced that it would purchase another NIS 35 billion in government bonds.¹² The aim of the program was to influence bond yields in the market throughout the unindexed and indexed curves, and thereby lower the costs of longer-term credit for firms and households, as a complementary tool to the short-term interest rate policy. Similar to the March 15 program, the announcement of the program did not have an apparent immediate impact on government bond yields.

On July 6, the Bank of Israel announced that it would purchase a total of NIS 15 billion in corporate bonds in the secondary market, and by the end of the year, it had purchased about NIS 3.5 billion of such bonds.¹³ The declared aim of the Bank’s intervention was twofold: to inject liquidity into the corporate bond market, and to lower the yield spreads in order to ease the terms of credit for companies raising money in the market. An examination by the Bank of Israel shows that bond prices rose

¹⁰ See the announcement at <https://www.boi.org.il/en/NewsAndPublications/PressReleases/Pages/15-03-2020.aspx>

¹¹ <https://www.boi.org.il/en/NewsAndPublications/PressReleases/Pages/22-3-20a.aspx>

¹² For the notice, see <https://www.boi.org.il/en/NewsAndPublications/PressReleases/Pages/22-10-20b.aspx>

¹³ See: <https://www.boi.org.il/en/NewsAndPublications/PressReleases/Pages/6-7-2020.aspx>

(meaning their yields declined) immediately after the announcement, and continued to rise the following day.

3. An empirical examination of the impact of the Bank of Israel's government bond purchases on their yields

The following is an empirical examination of the extent of the Bank of Israel's effect on government bond yields from March 23 until the end of the year. The first channel we examine is the liquidity channel. According to this channel, the Bank of Israel's purchases over the year provided liquidity to the markets, thereby contributing to the moderation of market volatility. It should be emphasized that through this channel, the Bank of Israel acts to moderate supply shocks in the markets on days when it intervenes and not necessarily to affect prices permanently. This is shown by a Bank of Israel Research Department analysis published on June 3.¹⁴ The estimation here was made using a linear regression model, similar to D'Amico and King (2013).¹⁵ The dependent variable in the regression is the daily change in the yields on 1–10-, 15-, and 20-year bonds according to the real and nominal zero curve calculated by the Bank of Israel. The explanatory variable is the total daily interventions during the day on the indexed curve and on the unindexed curve.¹⁶ We begin the estimation period on March 23 in order to mitigate reverse causality concerns.^{17,18}

When the Bank of Israel purchases NIS 100 million of nominal and indexed government bonds, it causes an average decline of 0.01 percentage points in nominal yields, and of 0.014 percentage points in the indexed curve, respectively.

The results show that the purchases had a negative impact on yields. When the Bank of Israel purchases NIS 100 million of nominal and indexed government bonds, it causes an average statistically significant decline of 1 basis point (0.01 percentage points) in nominal yields, and of 1.4 basis points (0.014 percentage points) in the indexed curve, respectively. The Bank of Israel thereby essentially lowers yields on days when it intervenes by providing liquidity in the market. The results also show that in the liquidity channel, the effect on the nominal curve is less than the effect on the real curve.¹⁹ This means that the Bank of Israel's intervention also has an indirect

¹⁴ See: <https://www.boi.org.il/en/NewsAndPublications/PressReleases/Pages/3-6-2020a.aspx>. Some of these purchases may also have a permanent impact through the other channels mentioned in the box (similar to the signaling channel)—if market participants wait for the actual intervention because they do not believe that the Bank will actually intervene to the quantities announced.

¹⁵ D'Amico, S. and T. B. King (2013). "Flow and Stock Effects of Large-Scale Treasury Purchases: Evidence on the Importance of Local Supply", *Journal of Financial Economics*, 108(2): 425–448.

¹⁶ Separate panel regressions were run for the nominal and real curves. Since we assume the same coefficient for all yields on the nominal curve, we essentially estimate the average effect. The same is true for the real curve. Another explanatory variable that was included in the regression is the change in parallel yields in the US.

¹⁷ As stated, the Bank of Israel intervened as early as March 15, during the increase in yields in the market. The estimation of the linear regression model during this period causes the intervention coefficient to be positive. In other words, the Bank of Israel's interventions lead to an increase in yields.

¹⁸ However, it should be emphasized that the sample estimation after March 23 does not necessarily completely cancel the reverse causality problem. The Bank of Israel may have acted mainly to moderate the increase in yields during the following period. As such, we assume that our estimation underestimates the Bank of Israel's impact on liquidity in the market.

¹⁹ A statistically significant result.

effect on estimated inflation expectations derived from the capital market, contributing an average of 0.4 basis points along the curve to the increase in expectations measured on days when it intervenes (when it purchases NIS 100 million of unindexed and indexed government bonds), although the result is not statistically significant.

In order to estimate the effect of the announcement of the Bank of Israel intervention program (as opposed to the previous investigation that dealt with the effect of the interventions themselves throughout the year), we take an event study approach. We examine the change in yields the day before the Bank of Israel's announcement and a number of days after it. The latent assumption in this approach is that the permanent effect of the program will be reflected in investors' behavior in the market during the small period examined.²⁰ Our approach is very similar to that of Gagnon, Raskin, Remache, and Sack (2010)²¹, who examined the effect of the Federal Reserve's interventions during the 2008 Global Financial Crisis. We make a number of adjustments to the Israeli market and to the fact that the motivation for the Bank of Israel's intervention in this crisis, beyond increasing monetary accommodation, was also to provide liquidity to the markets.

As a small and open economy, Israel is greatly affected by global interest rates. Many countries adopted government bond purchasing policies. For instance, the Federal Reserve announced a government bond purchasing program one hour before the Bank of Israel's March 23 announcement. In order to calculate the effect of the US interest rate change on the interest rates in Israel, we estimated a linear regression model from 2017 through February 2020, and we also estimated the effect of a change in the daily yield in the US on the parallel yield in Israel during a short period before the crisis. Estimating the link between yields in Israel and those in the US will enable us to understand how much of the decline during the examined period is due to an external change that is not under the Bank of Israel's control.

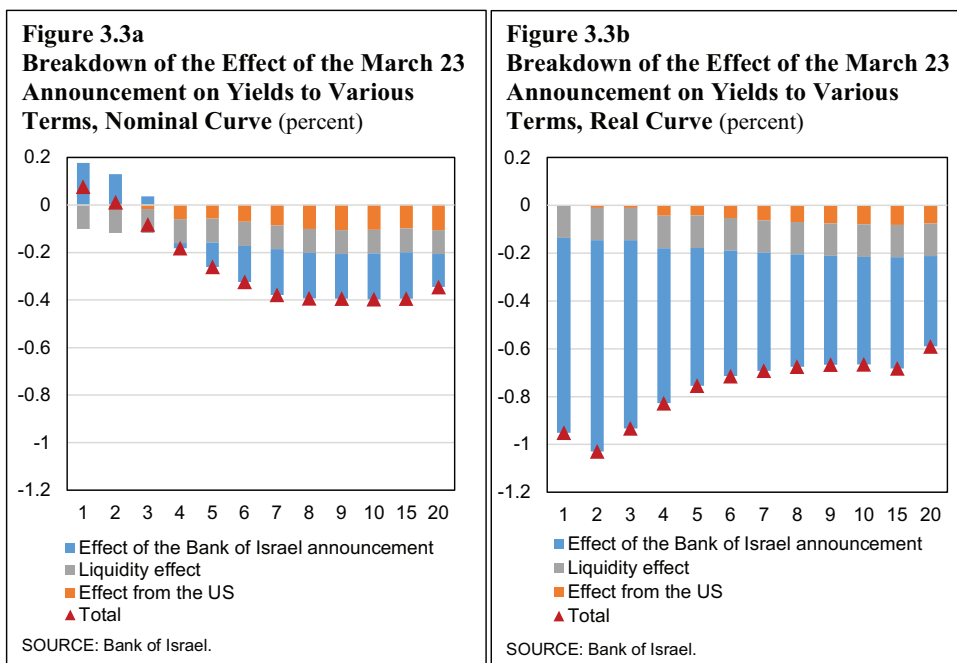
Another factor we would like to control for in estimating the effect of the Bank of Israel's announcements is the quantity of the Bank's intervention during the short period we examine. As stated, beyond the effect of the announcement and the various channels through which it operates, the Bank of Israel also provided liquidity to the markets at the time of its announcements. In order to calculate the effect of the improved liquidity, we use estimations from the linear regression model we estimated in order to examine the liquidity channel.²²

²⁰ The disadvantage of this approach is that a long time may pass until the investors understand the significance of the purchasing program—beyond the small time window that was examined.

²¹ See: Gagnon, J., M. Raskin, J. Remache, and B. Sack (2011), "The Financial Market Effects of the Federal Reserve's Large-Scale Asset Purchases", *International Journal of Central Banking*, 7(1): 3–43.

²² The decline in yields during the period may also have been due to macroeconomic factors and risk premia, such information that the crisis would not be as bad as initially thought, and not necessarily from the intervention itself. We cannot control for this in our examination.

We first examine the March 23 announcement regarding the program to purchase of NIS 50 billion. The results of the effect of the channels on bond yields are presented in Figures 3.3a and 3.3b.²³



Following the Bank of Israel's March 23 announcement, yields declined by 0.25 percentage points on average across the terms to maturity on the nominal curve.

We first analyze the results obtained from the nominal curve (Figure 3.3a). The yields, other than those for one and two years, declined following the announcement of the Bank of Israel's intervention, by rates of between 0.1 percentage points for a term to maturity of 3 years and 0.4 percentage points for a term to maturity of 20 years. The figure also shows that a small part of the change in nominal yields can be explained by the change in yields in the US during the same period, while another part of the change can be explained by the intervention through the liquidity channel. However, a large part of the change in yields, calculated as the gap between the decline in yields during the examined period and the effect of the liquidity channel and the effect of yields in the US, can be explained by the Bank of Israel's announcement. On average across the terms to maturity on the nominal curve, yields declined by 0.25 percentage points: 0.07 percentage points due to the change in yields in the US during that period; 0.1 percentage points resulted from the Bank of Israel's injection of liquidity; and 0.08 percentage points resulted from the Bank of Israel's announcement.

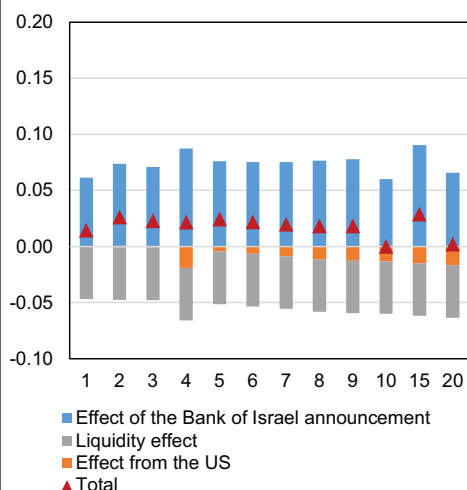
²³ The Research Department analysis published on June 3 also examined the effect of the Bank of Israel's announcement at the intraday level. The results there support the daily regression presented here, in which only part of the effect was due to the Federal Reserve's announcement an hour before the Bank of Israel's announcement.

The analysis of the real curve (Figure 3.3b) shows a more dramatic decline in yields following the Bank of Israel's announcement—particularly in the short part of the curve, which declined by 1 percentage point. As with the results regarding the nominal curve, here too we see that part of the effect is due to real yields in the US, as well as the intervention through the liquidity channel. Most of the decline can be explained by the Bank of Israel's interest rate announcement. On average across the terms to maturity on the real curve, yields declined by 0.76 percentage points: 0.05 percentage points due to the change in yields in the US during that period; 0.14 percentage points resulted from the Bank of Israel's injection of liquidity; and 0.57 percentage points resulted from the effect of the announcement.

Yields declined by 0.76 percentage points on average across the terms to maturity on the real curve following the Bank of Israel's March 23 announcement.

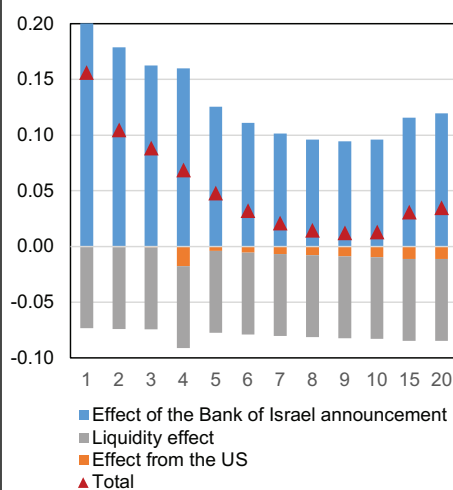
We now examine the effect of the October 22 announcement regarding continued purchases, using the same empirical framework examined above. Figure 3.2 does not show that the announcement had a similar effect to that of the March 23 announcement. Figures 3.4a and 3.4b show the results of the decomposition presented in Figure 3.3 and confirm this perception. In the model we estimated, we did not find that the Bank of Israel announcement had an effect. The model relates to the Bank of Israel's positive effect on yields, because yields in the market did not decline during those days (but increased by an average of 0.02 percentage points on the nominal curve and 0.05 percentage points on the real curve). We can also see that the purchases had a negative impact on yields through the liquidity channel, in addition to the impact of the decline yields in the US. So why do we not identify any effect on the part of the Bank of Israel's October 22 announcement? First, the market may have expected the Bank of Israel to intervene again, and was therefore not surprised by the announcement. Second,

Figure 3.4a
Breakdown of the Effect of the October 22 Announcement on Yields to Various Terms, Nominal Curve (percent)



SOURCE: Bank of Israel.

Figure 3.4b
Breakdown of the Effect of the October 22 Announcement on Yields to Various Terms, Real Curve (percent)



SOURCE: Bank of Israel.

the announcement of the duration of purchases was made together with the Bank of Israel's interest rate announcement, in which the Bank announced that the interest rate would remain unchanged at 0.1 percent. Some of the professional forecasters had projected a decline of the interest rate. The lack of such a decline may have been a negative surprise for the market, which was somewhat offset by the announcement of the purchasing program.

The Bank of Israel's March 23 announcement was found to have a significant impact on yields in the government bond market. That announcement led to lower yields on both the nominal and real curves. In addition, Figure 3.2 shows that the announcement had a permanent effect on yields, in that during the reviewed period, yields increased back to their precrisis levels. We also found that the Bank of Israel's interventions themselves throughout the period provided liquidity to the government bond market and lowered the liquidity premium on the days on which the Bank intervened.

The same mechanisms mentioned in the discussion on the intervention's effect in the government bond market can be expected to work in the corporate bond market. For more information on the effects of the Bank of Israel's intervention in this market, see Chapter 4 of this Report and the Financial Stability Report for the second half of 2020.

c. The Bank of Israel's intervention in the foreign exchange market

The Bank of Israel intervened in shekel-dollar trading in 2020 by purchasing a record amount of about \$21.2 billion (equal in value to the Bank of Israel's total foreign currency interventions from 2016 through 2019).

The Bank of Israel intervened in shekel-dollar trading in 2020 by purchasing a record amount of about \$21.2 billion (equal in value to the Bank of Israel's total foreign currency interventions from 2016 through 2019).²⁴ Furthermore, the minutes of the interest rate discussions held on February 24, 2020 (which were published on March 9), show that the Bank uses intervention in the foreign exchange market as an additional tool for managing monetary policy, and that it will intervene in order to prevent an anomalous appreciation of the shekel by purchasing foreign exchange to the extent necessary, particularly if the appreciation is due to factors of a financial nature.²⁵ The change in the intervention policy came in view of the shekel's 1.35 percent appreciation in terms of the nominal effective exchange rate between the beginning of the year and the end of February, which brought the total appreciation since 2008—when the Bank of Israel began intervening in the foreign exchange market—to 39 percent. This appreciation is one of the factors making it difficult to return inflation to the target range.

One of the factors contributing to the shekel's appreciation in terms of the nominal effective exchange rate in 2020 was the continued decline in Israel's risk premium. Country risk, as reflected in Israel's CDS spread, has declined in recent years. This

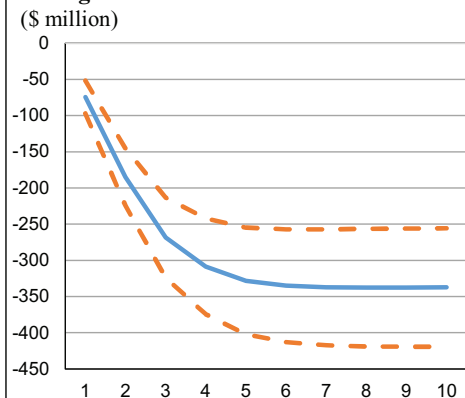
²⁴ In addition, on January 14, 2021, following the period reviewed in this Report, the Bank announced that it would purchase \$30 billion in 2021. It should be emphasized that the Bank of Israel's purchases are sterilized and do not increase the monetary base.

²⁵ In the relevant portion of the minutes, it is stated that, "They emphasized that the Bank of Israel is prepared to prevent an excessive appreciation of the shekel by purchasing foreign exchange as necessary, particularly if the appreciation is due to factors of a financial nature."

decline reduced the premium demanded for investing in the shekel, which led to its appreciation. The decline in risk is also reflected in the continued increase of nonresidents' investments in Israel, which also led to a continued increase in the current account surplus, which grew by \$6.6 billion in 2020 relative to 2019. (For more information see Chapter 2.) The growth of the current account surplus was due to developments having to do with the COVID-19 crisis abroad, and the continued growth of Israeli high-tech services exports. Another factor contributing to the shekel's appreciation was the weakening of the dollar against most currencies in 2020, partly in view of monetary accommodation measures adopted in the US and the COVID-19 crisis.

Yet another factor supporting the appreciation of the shekel in 2020 was the rate of institutional investors' exposure to investments abroad through futures contracts, as described in depth in the Financial Stability Report for the second half of 2020. Investment in futures contracts enables the leverage of the initial investment. As a result, positive yields abroad (as there were in the past few years) are translated into significant cash flows that the institutional investors convert back into shekels. The institutional investors' foreign exchange cash flows show that they became net sellers of foreign exchange (purchased shekels), thereby supporting the trend of appreciation. Another part of the institutional investors' net purchases of shekels was due to adjustments they make in their portfolio of holdings, such as reducing the volume of exposure to foreign exchange assets (meaning they bought shekels) when their value increases. However, it should be noted that most of the demand for shekels comes from foreign investors.

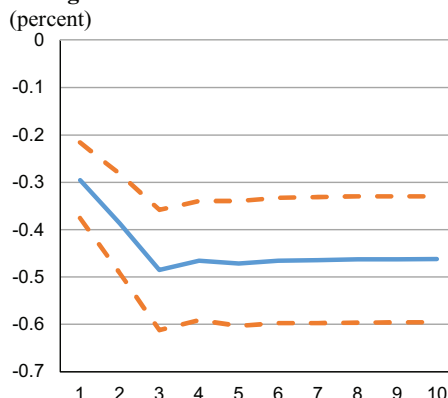
Figure 3.5a
Reaction of Institutional Cash Flows to the
Changes in the S&P 500 Index
(\$ million)



Note: The X-axis represents the number of weeks after the increase, and the Y-axis represents the change in institutional investors' foreign exchange holdings in millions of dollars. The dashed lines show the range of statistical error at a confidence level of 95 percent.

SOURCE: Bank of Israel.

Figure 3.5b
Reaction of the Exchange Rate to the
Changes in the S&P 500 Index
(percent)



Note: The X-axis represents the number of weeks after the increase, and the Y-axis represents the change in the shekel-dollar exchange rate. The dashed lines show the range of statistical error at a confidence level of 95 percent.

SOURCE: Bank of Israel.

In order to understand the size and potential effect of these adjustments, we examined the link between an increase in the value of the S&P 500 index (an index of the 500 companies with the highest market capitalization among the companies traded on the US stock exchanges) and the foreign exchange flows of the institutional investors together with the development of the shekel-dollar exchange rate at a weekly frequency²⁶, using a vector autoregression model.²⁷

Figures 3.5a and 3.5b show the cumulative dynamic response of institutional flows and of the shekel-dollar exchange rate in the week following an increase of one standard deviation in the weekly return of the S&P 500 index (a return of 2.6 percent). Figure 3.5a shows that the response to a typical increase in returns on the S&P 500 index (one standard deviation) was to purchase shekels (sell dollars) totaling between \$100 million and \$350 million in the following 10 weeks. Figure 3.10b shows that the shekel appreciated by about 0.4 percent against the dollar, and that the appreciation continued to accumulate to about 0.6 percent during the following 10 weeks. The fact that the return on the S&P 500 index was positive in recent years (about 9 percent in 2020 and a total of 56 percent between 2017 and 2020) supports the assessment that institutional flows contributed to the trend of appreciation in recent years in general, and in 2020 in particular.

One-off events also contributed to the trend of appreciation of the shekel in 2020. These included Israel's inclusion in the World Government Bond Index (WGBI) in April.²⁸ The WGBI index tracks the performance of government bonds in about 20 countries. Many bond funds around the world track the index, which means that following Israel's inclusion in the index, demand for the shekel was expected to increase, potentially leading to appreciation.²⁹ According to Bank of Israel data, foreign holdings of Israeli government bonds did increase, from 5.2 percent in April 2020 to 7.1 percent in July 2020. By a rough estimate, the increase reflects demand of about NIS 13 billion (about \$4 billion) during the three months from May to July.³⁰ To put this number into perspective, it should be noted that during those months, nonfinancial sector demand for foreign exchange, which has been a significant part of

One-off events also contributed to the trend of appreciation of the shekel in 2020, including Israel's inclusion in the World Government Bond Index (WGBI) in April.

²⁶ These are weekly data from the beginning of 2008 to the end of December 2020.

²⁷ We used two lags for each of the variables (the AIC test showed that this is the optimal number of lags). We also used the euro-dollar exchange rate as an additional exogenous variable. The selected order of Cholesky decomposition is: Change in the S&P 500 index, institutional flows, and shekel-dollar exchange rate. A further examination shows that the results are the same even if we remove March and April 2020 from the sample.

²⁸ This does not mean that joining the WGBI is not justified. On the contrary, it is expected to improve the liquidity of the government bond market.

²⁹ It can be argued that Israel joining the WGBI index is good news for the Israeli economy, so it would therefore lead to a strengthening (appreciation) of the shekel. However, the announcement that Israel would join the index was made in September 2019, which means that the good news was already known when the flows came in April 2020. See <https://www.ftserussell.com/press/ftse-russell-announces-results-country-classification-review-equities-and-fixed-income>

³⁰ For data on foreign holdings in the government bond market, see <https://www.boi.org.il/en/DataAndStatistics/Pages/MainPage.aspx?Level=3&Sid=4&SubjectType=2>

demand for foreign exchange in recent years, was about \$3 billion. It should also be noted that the Bank of Israel purchased about \$3.2 billion during that period.

The COVID-19 crisis also had a tremendous impact on the foreign exchange market, and even contributed to a rapid depreciation during part of the period. The high demand for dollars was not unique to Israel, and developed in many other countries.³¹ In Israel, the Bank of Israel was able to provide liquidity on its own thanks to the large foreign exchange reserves it had built up, which provided it with a security buffer. The sharp and rapid depreciation of the shekel forced the institutional investors to purchase dollars at higher prices, which had an adverse impact on the public's savings. Therefore, in order to provide the missing liquidity, it made repo transactions with the domestic banks totaling \$7.5 billion.³² The Bank of Israel's actions were proven to be effective. After the shekel-dollar rate reached a peak of NIS 3.86/\$1 on March 17, it fell back to NIS 3.65/\$1 the following week.

2. INFLATION

Inflation in 2020 was affected to a great extent by the COVID-19 crisis. First, global energy and food prices declined as a result of falling global demand due to the pandemic. Second, the nature of the pandemic and how it was dealt with were reflected in a significant impact to industries such as tourism and restaurants, both on the side of lower public demand and on the supply side due to restrictions imposed on these industries. With the aim of preventing economic contagion, beyond the direct impact on these industries, the decline in income of those employed in them had an impact on their demand in other industries that were not directly affected, such as manufacturing and high-tech.³³ This effect is intensified since those employed in vulnerable industries are restricted in their ability to smooth their consumption by taking out loans. Some of this effect was offset by fiscal policy (through unemployment payments) and monetary policy (through leniencies in terms of credit) taken during the year. It should be noted that this is only one of the mechanisms that were likely used during the crisis. Lower demand can also be due to other factors, such as precautionary savings—the deferral of consumption today because of uncertainty regarding the future.

The COVID-19 pandemic also created difficulty in measuring inflation this year, for a number of reasons. First, the public changed the composition of its consumption basket, while the Central Bureau of Statistics (CBS) calculates the Consumer Price Index based on a fixed consumption basket. As such, an examination of price changes according to the indices published by the CBS may make it difficult to properly interpret

Inflation in 2020 was affected to a great extent by the COVID-19 crisis.

³¹ For more information regarding the dollar liquidity crisis, see Avdjiev, Eren, and McGuire (2020), “Dollar Funding Costs During the COVID-19 Crisis Through the Lens of the FX Swap Market”, BIS Bulletins.

³² In a swap transaction on the foreign exchange market, one party borrows dollars for a limited period, and gives collateral in shekels. For more information on the Bank of Israel's steps in the swap market, see the Monetary Policy Report for the second half of 2020.

³³ For more information, see Chapters 1, 2, and 5 in this Report.

Table 3.1
Development of prices, by various components, 2016–20

Period	Consumer Price Index	Fruit and Vegetables	Food	Housing	Dwellings Maintenance	Furniture and Household Equipment	Clothing and Footwear	Education, Culture and Entertainment	Health	Transport and Communication	Miscellaneous	Energy Index ^a	Index excluding energy, food, and fruit and vegetables	Index excluding energy, food, and government-initiated price changes	Nontradable component net of electricity, water, communications, food, and fruit and vegetables	Nontradable component net of electricity, water, communications, and fruit and vegetables	Seasonally adjusted index ^b
2016	-0.2	-2.7	-1.5	1.4	0.5	-2.4	-1.0	0.7	0.8	-1.9	0.7	-0.2	0.0	0.2	0.0	1.2	1.0
2017	0.4	-3.8	0.2	2.4	1.1	-3.8	-4.6	0.1	1.0	-0.9	0.5	3.4	0.1	0.2	0.5	2.0	1.8
2018	0.8	12.4	1.3	1.9	0.8	-1.2	-2.9	0.2	-0.1	-0.5	0.1	-1.5	0.9	0.5	1.1	1.5	1.5
2019	0.6	-2.8	1.1	2.1	1.8	-2.5	-5.5	1.3	0.0	-0.2	-0.5	2.5	0.4	0.5	0.3	1.8	1.7
2020	-0.7	4.4	-0.6	-0.2	-0.6	-0.1	-5.7	0.2	-0.6	-2.1	-0.4	-8.2	-0.1	-0.4	-0.3	0.1	0.1
January	-0.4	2.5	-0.5	-0.4	-0.1	-0.2	-6.4	-0.5	0.1	-0.1	-0.3	-1.6	-0.3	-0.4	-0.5	-0.2	-0.3
February	-0.1	1.6	0.0	0.0	0.0	0.4	-3.1	0.2	-0.1	-0.6	0.2	-1.6	0.0	-0.1	0.0	0.1	0.0
March	0.4	-0.5	0.6	0.9	0.1	0.5	3.2	0.3	-0.1	0.2	0.1	-0.7	0.4	0.6	0.5	0.5	0.2
April	-0.3	4.8	0.7	-0.2	-0.2	0.4	2.4	-0.1	-0.1	-3.0	-0.3	-9.2	0.2	-0.1	0.3	-0.2	0.0
May	-0.3	0.9	-0.9	-0.3	0.1	-0.5	0.3	0.0	-0.2	-0.4	0.0	-1.2	-0.1	-0.1	-0.3	-0.1	-0.6
June	-0.1	-6.1	-0.2	-0.1	-0.1	-0.2	-0.8	-0.5	-0.2	1.3	0.0	4.3	-0.4	-0.1	-0.3	-0.1	0.0
July	0.2	0.6	0.1	0.2	0.0	-0.5	-5.9	0.5	0.3	0.8	0.2	2.2	0.1	-0.1	0.0	0.2	0.2
August	0.0	-0.1	0.0	-0.1	0.1	0.0	-2.2	0.9	-0.1	0.0	-0.2	0.2	0.0	0.0	0.0	0.1	0.0
September	-0.1	2.9	-0.7	0.3	-0.1	0.6	-0.3	-0.3	-0.3	-0.1	0.1	0.4	0.0	-0.1	0.0	-0.1	0.0
October	0.3	2.7	0.4	-0.1	-0.4	0.2	3.6	0.2	0.1	0.0	0.0	-0.4	0.3	0.2	0.3	0.1	0.0
November	-0.2	-2.3	0.1	-0.4	0.1	-0.9	4.2	-0.2	0.1	-0.3	0.2	-1.1	-0.2	-0.1	-0.1	-0.2	0.1
December	-0.1	-2.2	-0.2	0.0	-0.1	0.1	-0.1	-0.3	-0.1	0.1	-0.4	0.9	-0.1	-0.2	-0.2	-0.1	0.0

^a The energy component includes vehicle fuels and oils, and household electricity, natural gas and diesel.

^b As calculated by the Bank of Israel Research Department (see Box 1 in the Inflation Report for the first quarter of 2010).

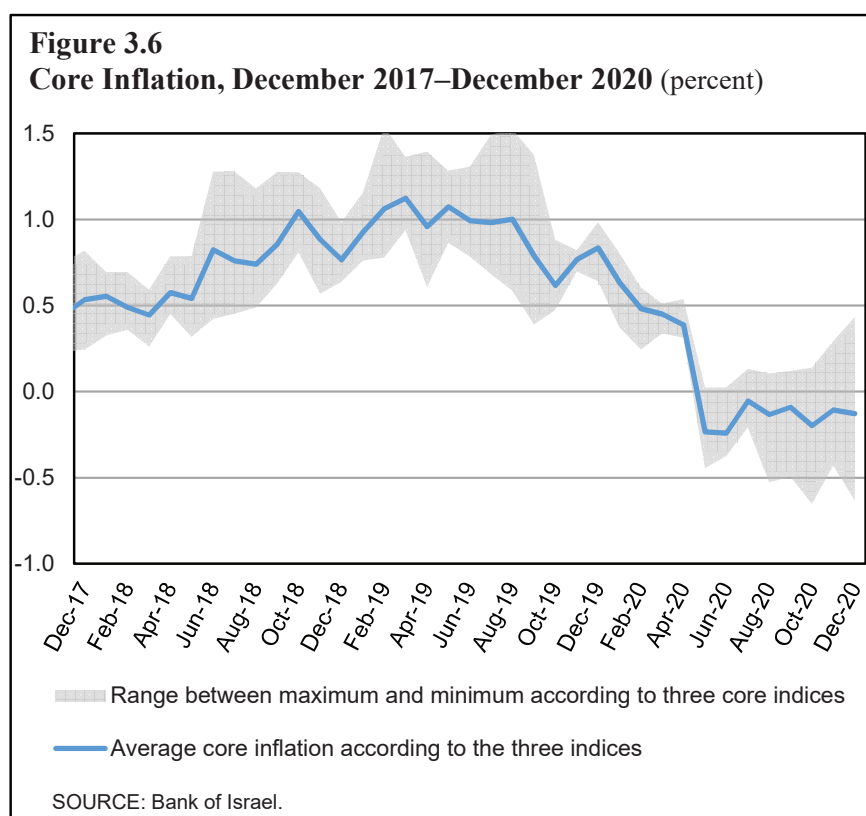
SOURCE: Based on Central Bureau of Statistics.

inflation data. For more on this, see Box 3.1. In addition, since some industries were shut down during the lockdowns (such as travel abroad and hospitality), it was not possible to measure price changes in those industries for part of the time. In order to overcome this difficulty, the CBS imputed price changes in those industries according to the change in the overall CPI.³⁴

a. The development of inflation

Annual inflation in 2020 was significantly impacted by the COVID-19 crisis. It was negative throughout most of the year, and declined overall by 0.7 percent (Table 3.1). The significant decline in inflation reflects the dominant effect of the demand side including the activity restrictions in certain industries due to the pandemic. Basically, most CPI components showed declines during 2020.

Inflation was negative throughout most of the year, and declined overall by 0.7 percent.

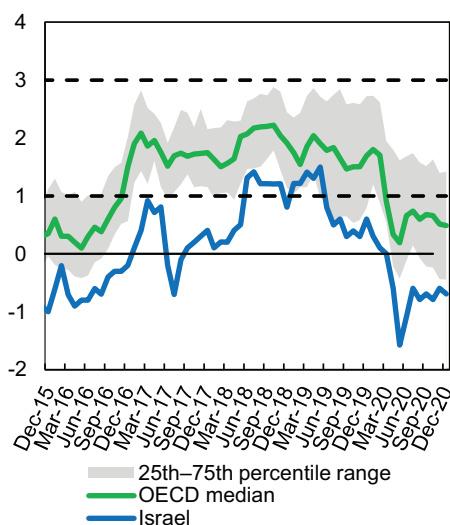


³⁴ Another measurement difficulty that was created due to the COVID-19 crisis has to do with declining product quality. For instance, the quality of hospitality at a hotel was likely impacted during the crisis. For more information on the various measurement difficulties, see Box 2 of the Monetary Policy Report for the first half of 2020.

The assessment regarding a negative impact to demand is supported by an unprecedented decline in the weight of private consumption as a share of GDP in the first half of 2020—far beyond the decline during the 2008 Global Financial Crisis, despite the significant accommodative measures that were adopted. Estimates of core inflation, which are adjusted for factors external to the economy, also show a significant decline following the beginning of the COVID-19 crisis (Figure 3.1).³⁵ In addition, an analysis of prices and quantities in the main components of the CPI shows that between one-third and half of the components that were directly impacted by the crisis showed declines in both quantities and prices. (For more information, see Section 4 in this chapter.)

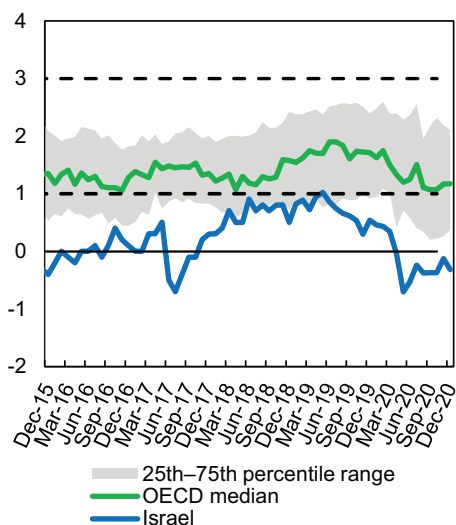
The development of inflation in Israel was in line with the inflation development trends in the OECD countries. However, the price declines in Israel were sharper than in most of the OECD countries. Figure 3.2a shows that annual inflation in Israel was below the 25th percentile of OECD countries in 2020, similar to previous years. In order to make sure that this result is not due to externalities of the Israeli economy, which differ from those of other economies in the OECD, Figure 3.2b shows inflation

Figure 3.7a
Overall CPI Inflation,
Dec 2015–Dec 2020 (percent)



Note: The calculation does not include Australia or New Zealand since they only publish quarterly data.
 SOURCE: Based on OECDstat.

Figure 3.7b
Inflation Excl., Energy and Food,
Dec 2015–Dec 2020 (percent)



Note: The calculation does not include Australia or New Zealand since they only publish quarterly data.
 SOURCE: Based on OECDstat.

³⁵ The core inflation presented in the figure is the index based on the average of three statistical indices: 1. Inflation adjusted monthly for components with sharp price changes; 2. Inflation based on the median price change in the CPI components; and 3. Inflation based on the component that best explains all of the components of inflation (the first component estimated through a principal component analysis).

excluding energy and food—the components most affected by external factors. The picture that emerges from Figure 3.2b is similar to that of Figure 3.2a, which includes these components. The reasons for the differences in recent years, as well as in 2020, have partly to do with the significant appreciation of the shekel, as will be shown in Section 2b.

b. The dominant factors moderating inflation

1. Lower domestic demand due to the COVID-19 pandemic

Due to the many lockdowns and closures as well as health concerns, some industries (such as hotels) experienced low demand throughout the year. The impact to activity was reflected in a sharp increase in broad unemployment.³⁶ Until the beginning of 2020, the labor market showed a continued decline in unemployment with wage increases in recent years. (For more information, see Chapter 5 of the Bank of Israel Annual Report for 2019.) Due to the COVID-19 crisis, the labor market picture reversed in 2020. The number of unemployed under the broad definition increased significantly, mainly due to the large number of employees being placed on unpaid leave or being dismissed. (See Chapter 2 of this Report.) The sharp increase in unemployment (and with it the decline in income) filtered through to industries that were not directly impacted by the crisis, thereby leading to increased unemployment in additional industries. An analysis of the number of unemployed indicates an increase in unemployment in all industries (relative to February 2020), and not just in the industries that were directly impacted. The decline in employment, and the resulting impact to the income of those employed in such industries, alongside the decline in demand for workers that reduced the pressure on wages, acted to moderate price increases.

Moderating activity and the decline in energy prices contributed to the decline in inflation.

2. Energy and commodity prices

Imported commodities are used as raw materials for production, and their prices therefore have an impact on the costs of production both abroad and in Israel. The pandemic affected economic activity in a great number of countries around the world, and global demand for commodities declined. Table 3.1 shows that domestic energy and food prices declined during 2020, mainly in April and May, due to the effect of the COVID-19 crisis.³⁷ The assessment is that the energy and food items contributed

³⁶ Unemployment in its broad definition includes, in addition to the unemployed, employees who were temporarily absent from their jobs for reasons that have to do with the pandemic, as well as those who stopped working due to being dismissed or the closure of their workplace since March 2020 and are therefore no longer counted among labor force participants.

³⁷ The sharp declines in global energy and food prices took place in March. However, they are reflected in the CPI with a lag. The effect on domestic prices also includes the change in the exchange rate.

about -0.6 percentage points to the CPI in 2020.³⁸ It should be noted that toward the end of the year, there was some recovery in global commodity prices.

3. The exchange rate

The appreciation of the shekel, which works to lower the prices of imported goods, has made it more difficult to return inflation to the target range in recent years.

The exchange rate has an effect on inflation in Israel through import prices. The appreciation of the shekel, which works to lower the prices of imported goods, has made it more difficult to return inflation to the target range in recent years. From 2013 to the end of 2020, the shekel appreciated by about 32 percent in terms of the nominal effective exchange rate. (For more on the factors affecting the exchange rate, see Section 1 of this chapter.)

In 2020 as well, appreciatory pressures contributed to the decline in the Consumer Price Index. The shekel appreciated during the year by 5.5 percent in terms of the nominal effective exchange rate. We have shown that inflation in Israel during the year was below the 25th percentile among the OECD countries. If the appreciation was truly a significant factor explaining the inflation gap between Israel and the other OECD countries in recent years and in 2020, we would expect that other OECD countries where there was a significant appreciation would on average have inflation rates among the lower percentiles, as well as the opposite. In order to test this, we examined the link between the cumulative change in inflation excluding food and fruit and vegetables against the cumulative change in the nominal effective exchange rate of each of the OECD countries (including Israel) from 2015 through 2020.³⁹

The results are presented in Figure 3.8. Each point in the figure represents a combination of the cumulative rate of change in inflation and the change in the nominal effective exchange rate (a positive change indicates depreciation) for each country. The figure shows that there is a positive correlation between the change in the exchange rate and annual inflation.⁴⁰ On average, the countries that had low inflation also had greater appreciation of their currency. The opposite is also true. As such, the change in the nominal effective exchange rate can explain a significant portion of the variance in inflation in recent years in OECD countries in general and in Israel in particular. The figure supports the argument that the appreciation of the shekel was a significant factor in moderating inflation in 2020.

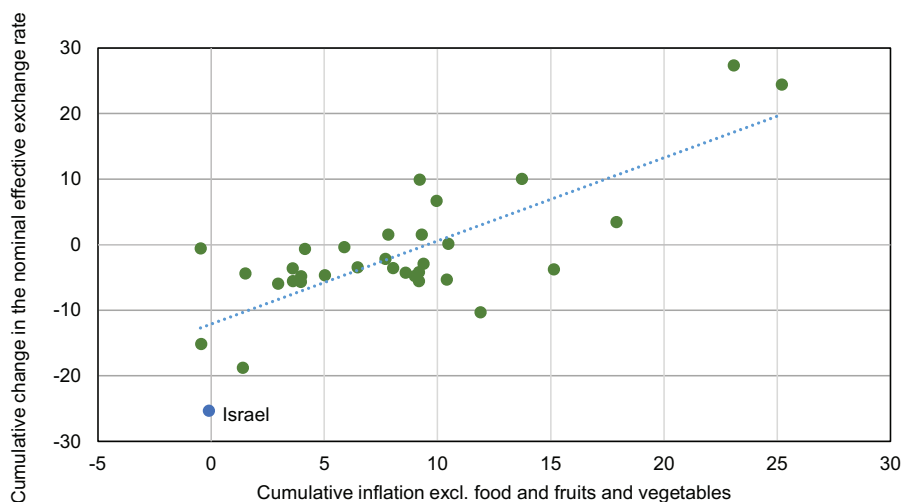
Another reason for the low inflation in Israel in recent years, although perhaps to a lesser extent this year, is the increase in competition in the economy, as discussed in depth in the Bank of Israel Annual Report for 2016. However, due to the COVID-19 crisis, the explanation for the increased competition differs from previous years.

³⁸ It should be noted that part of the decline is also due to the appreciation of the shekel, and not just to the decline in dollar-denominated energy and food prices.

³⁹ As of 2020, there are 37 member states in the OECD. Turkey was omitted from the calculation because of the extreme changes in its exchange rate and inflation, and Hungary was omitted due to a lack of inflation data for December 2020. The source for the inflation data is the OECD, and the source of exchange rate data is the BIS.

⁴⁰ The results are statistically significant. The R² of the regression is 49, and the regression coefficient is 0.46. It is clear that there are other factors explaining the heterogeneity between countries.

Figure 3.8
The Link Between Cumulative Inflation (excl. food and fruits and vegetables) and the Cumulative Change in the Nominal Effective Exchange Rate, 2015–2020 (percent)



SOURCE: Bank of Israel.

According to a survey the Bank of Israel conducts among the professional inflation forecasters regarding the factors that are expected to have an impact on inflation in the coming year, expectations at both the beginning of the year (prior to the start of the COVID-19 crisis) and at the end of the year were that increased competition would moderate inflation. A possible hypothesis is that each time the economy reopened (mainly in the summer), firms tended to lower prices in order to avoid being left with inventory in view of the uncertainty surrounding the development of morbidity and concern over further lockdowns as a result.

In addition, the Bank of Israel's policy measures were mainly focused on stabilizing the markets and moderating the crisis's impact on businesses and households, and—naturally at the peak of the crisis—placed less emphasis on accelerating inflation.

4. The housing market

In recent years, rent has been one of the factors supporting inflation (Table 3.1), in parallel with the increase in home prices, which was partly due to the shortage in supply of dwellings. However, in 2020, the annual rate of increase in rental prices slowed, and even declined slightly over the year as a whole. Over all, the housing item of the CPI (rents) contributed a total of -0.05 percentage points to inflation, after having contributed 0.5 percentage points at the beginning of the year.

The COVID-19 crisis is one of the factors that moderated the increase in rents in 2020.

One factor that moderated the increase in rents in 2020 is the COVID-19 crisis. Due to the crisis and its impact on the income of many households, discounts were given to tenants on existing contracts, which apparently had a moderating effect on new and renewing rental contracts as well. In addition, some of the decline may have been due to lower demand as tenants left high-demand areas (such as students returning to live with their parents), and as tourist demand for rental units dropped due to COVID-19 restrictions, although this was mainly a factor in Tel Aviv.

Another factor that moderated the increase in rents in 2020 is the stock of dwellings. According to an internal Research Department paper that will soon be published as a discussion paper, the shortage in the stock of dwellings that had been typical in recent years, and which had been among the causes of the increase in housing prices, eased in 2019. This may have been a factor in easing the increase in rents in 2020.

c. Inflation expectations derived from the capital market

The public's inflation expectations have an effect on the development of inflation in the present. For instance, if the public expects low inflation in the future, it may defer its consumption to the future. Deferring consumption may slow the pace of inflation and growth in the economy even now. The expectations also affect the determination of prices and of wages in the present. This mechanism clarifies why policy-makers at the central bank attribute great importance to inflation expectations.

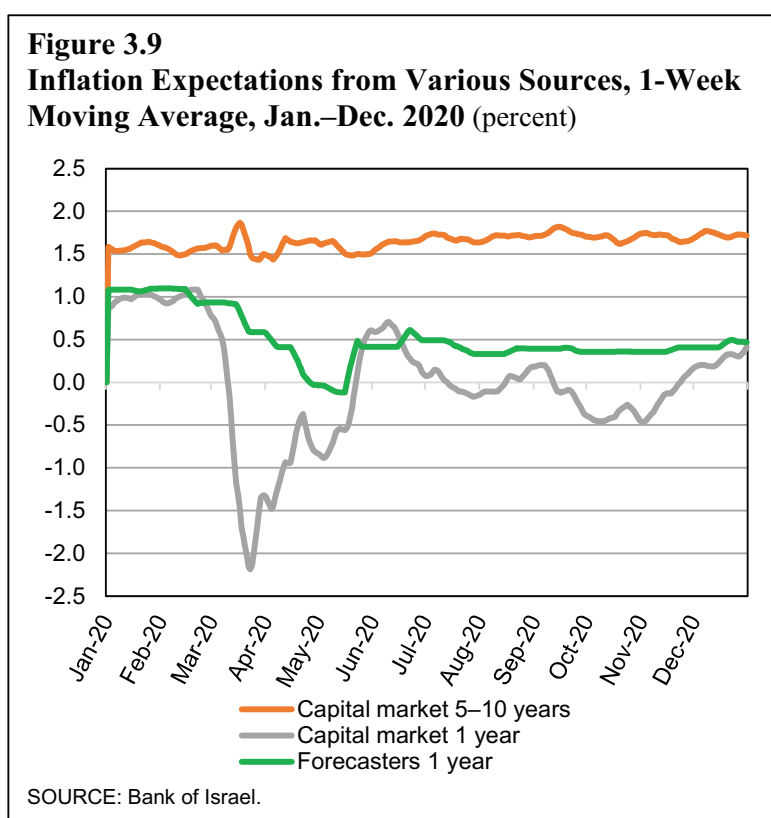
One-year inflation expectations derived from the capital market ranged around 1 percent at the beginning of the year, similar to the forecasters' projections (Figure 3.9). However, with the outbreak of the crisis, they declined in March to -2.5 percent, far below the forecasters' projections at that time. Thereafter, there was a gradual increase in one-year expectations, to 0.5 percent at the end of the year.

The sharp decline in estimated inflation expectations derived from the capital market in March did not reflect a 2.5 percent decline in the investing public's inflation expectations at the time, and was in complete contrast to the forecasters' projections. This is because, as opposed to the forecasters' projections, inflation expectations derived from the capital market include a liquidity premium.⁴¹ The liquidity premium on indexed government bonds (from which the real interest rate is derived) is higher than the premium on unindexed bonds (from which the nominal interest rate is derived). The former apparently increased due to sales pressures from mutual funds and institutional investors during the crisis, such that the real interest rate increased much more than the nominal interest rate did, leading to a dramatic decline in inflation expectations derived from the capital market (which are derived as the gap between the nominal and real interest rates). This phenomenon was also observed in other markets around the world, and during the 2008 Global Financial Crisis as well. (See Section 2 of this chapter for more discussion of the sales pressures in the government bond market during the crisis.)

⁴¹ They also include an inflation risk premium, but that is less significant in short terms. See "Breaking Down the Periodic Yield Curve in Israel", Daniel Nathan, 2021 (forthcoming).

Despite the declines in forecasters' inflation expectations to near-zero levels, five-year forward expectations from the fifth year remained stable throughout the year, including at the peak of the crisis.⁴² Central banks tend to look at estimated expectations in these ranges, since they do not reflect temporary effects (such as shocks to oil prices), but show long-term effects. Stability in the long-term forward inflation expectations around the midpoint of the target range is evidence of the credibility that the public attributes to the central bank in meeting the inflation target in the long term.⁴³

Despite the declines in forecasters' inflation projections to near-zero levels, five-year forward expectations from the fifth year remained stable around the midpoint of the target range throughout the year, including at the peak of the crisis.



⁴² It should be noted that five-year forward inflation expectations from the fifth year in the US, derived from swap contracts, declined in March from 2 percent to 1.4 percent. In April, forward expectations returned to their precrisis levels. However, the decline in the US was apparently due to the relative lack of liquidity in real bonds compared with nominal bonds, even with long yields—a situation that is different from Israel. See, for instance, D'Amico, Kim, and Wei (2018), "Tips from TIPS: The Informational Content of Treasury Inflation-Protected Security Prices", *Journal of Financial and Quantitative Analysis*, 53(1).

⁴³ While the analysis presented in Section 1 shows that the Bank of Israel's purchases do have an impact on estimated inflation expectations derived from the capital market, there is far less impact on longer inflation ranges since liquidity on the nominal and real curves is similar in the longer ranges.

d. The heterogenous impact of the COVID-19 crisis on prices

The COVID-19 crisis affected the prices of various goods and services differently, based on the extent of the impact on the industries producing or providing them.

The COVID-19 crisis affected the prices of various goods and services differently, based on the extent of the impact on the industries producing or providing them. The state of some of the industries even improved during the crisis as consumption was diverted to them. This section examines the heterogeneous effect of the crisis on quantities produced and on prices in 17 industries and subindustries in the Israeli economy, accounting for about 60 percent of the Consumer Price Index.

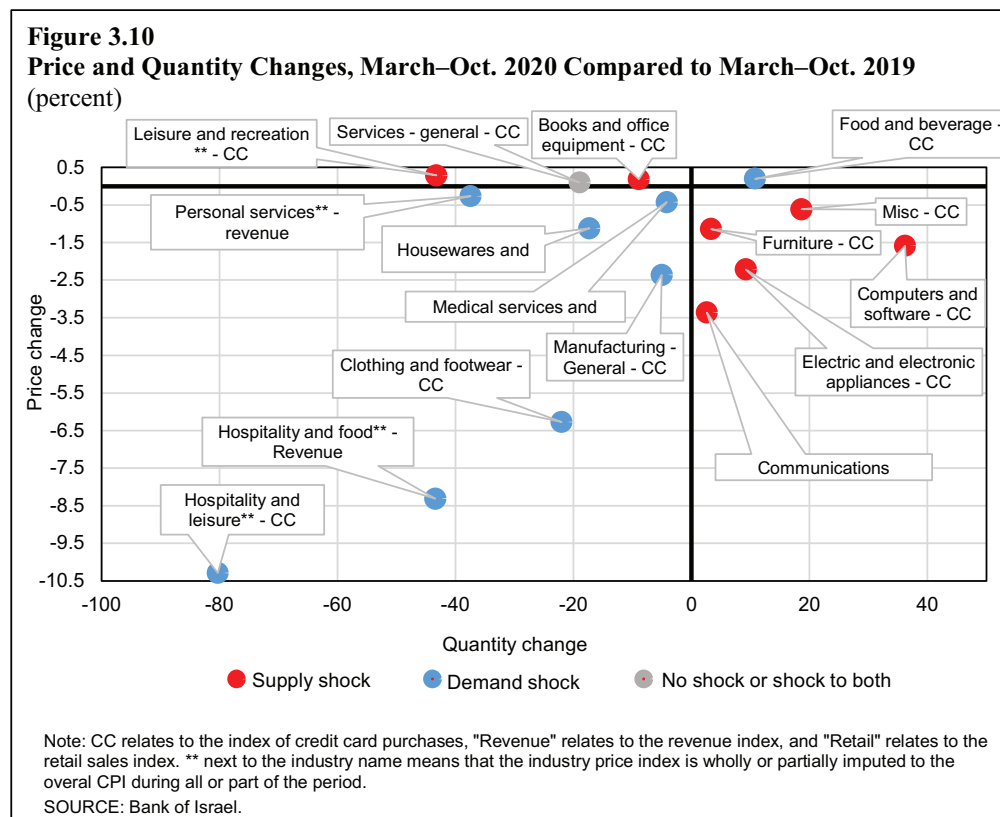
The results of the analysis are presented in Figure 3.10. The figure shows the change in prices (the vertical axis) and in quantities (the horizontal axis) in 17 industries between March and October 2020 compared with the same period in 2019.⁴⁴ The industries in the lower left quadrant of the figure experienced a negative demand shock (the blue dots reflect a negative change in prices and a decline in quantities). In contrast, the industries in the lower right quadrant experienced a positive supply shock (red dots reflect a negative change in prices and an increase in quantities).

Between one-third and one-half of the components included in the analysis, including the manufacturing, food, hospitality and leisure, and clothing and footwear industries, showed a decline in quantities and in prices, which is consistent with a negative demand shock. It should be stated that for some of the time, the Central Bureau of Statistics did not measure price changes in the hospitality and leisure and food industries, but rather imputed them to the change in the overall CPI. Since the overall CPI was negative, the change in these components may be downward biased.

In a few industries, such as electrical appliances and furniture, there were price declines with an increase in quantities, so that the increase in the supply of their products exceeded the increase in demand for them (a positive supply shock). This was apparently due to consumers' more prolonged presence at home and the need for technological tools for remote communication. It is interesting that despite the diversion of consumption and the increase in demand, the prices of such products did not increase, but actually declined. This may be due to the transition to online purchasing, where prices are lower, with the closure of stores due to lockdowns. It may also be due to the appreciation of the shekel, which may have made it easier to reduce prices. Beyond that, the reduced demand by the business sector for various products such as furniture and communications equipment may have led to an increase in supply for households and a concomitant decline in prices.

As noted at the beginning of this chapter, the COVID-19 crisis led to a change in the composition the household consumption basket. As a result, the representative basket used by the Central Bureau of Statistics may make it difficult to properly interpret the official inflation data. However, Box 3.1 in this chapter shows that despite the shock to the consumption basket in Israel, which is similar to the predominant trends in other countries, the deviation of overall inflation in Israel is relatively minor.

⁴⁴ We compare the period of lockdowns with the same period in the previous year, and not with the 8 months preceding the crisis, in order to take seasonality of prices into account.



3. THE MONETARY BASE AND MONETARY AGGREGATES

Interest is the price of money—the alternative cost of holding liquidity. As such, changes in the interest rate, in addition to changes in economic activity, have an impact on the demand for liquidity. When the nominal interest rate serves as a policy tool, the central bank sets a completely flexible money supply at its declared interest rate, and the monetary base—the total of banknotes and coins in circulation and the commercial banks' demand deposits with the Bank of Israel⁴⁵—is determined by the demand for liquidity at the central bank's declared interest rate.

a. The monetary base

The monetary base is affected by both flows that are not under the Bank of Israel's control, such as government accounts⁴⁶, and flows that are under its control, such as foreign exchange and bond purchases and makam issues. The Bank of Israel absorbs or injects liquidity in order to supply the demand for the monetary base in accordance

⁴⁵ The banks are obligated to deposit money in demand deposits at the Bank of Israel as part of their liquidity requirements.

⁴⁶ Government activity has an effect on the monetary base, since the government's accounts are managed at the Bank of Israel (pursuant to the Bank of Israel Law).

with the Bank of Israel interest rate. It adjusts the monetary base to the interest rate, taking into account the total of other flows, through interest-bearing deposits that it offers the banks by tender, which are not included in the monetary base, and by issuing makam.

In 2020, the monetary base grew by about NIS 27 billion (25.8 percent compared with 2019), after increasing by about NIS 4.7 billion in 2019 (Table 3.2). The growth reflected an increase of NIS 18.6 billion in cash (compared with NIS 1.3 billion in the previous year) and NIS 8.2 billion in the banks' demand deposits with the Bank of Israel (Table 3.3), which are held to meet liquidity requirements and reflect the increase in the public's deposits. The increase in demand for cash reflected two factors: (1) The public's demand for cash due to uncertainty created by the COVID-19 crisis. As Table 3.3 shows, there was a jump in cash held by the public after March. (2) The reduction of the Bank of Israel interest rate, which lowered the cost of holding cash.

Table 3.2 shows the Bank of Israel's large injection of shekels into the economy as part of the many programs that it put into action. These include loans to banks against their loans to small businesses (monetary loans totaling NIS 19.6 billion), bond purchases (about NIS 50 billion), and dollar purchases totaling about NIS 72 billion. The table also shows that the volume of makam issuances declined. To maintain the set level of the interest rate, the Bank of Israel absorbed the banks' surplus liquidity through short-term deposit tenders totaling NIS 171 billion.

b. The monetary aggregates

The M1 monetary aggregate includes cash held by the public and the public's demand deposits at the banks. The M1 aggregate increased by 28.3 percent in 2020, compared with an increase of 5.1 percent in 2019. Table 3.3 shows that the public's demand for liquidity during 2020 was reflected both in an increase in the volume of cash, as we showed in the previous subsection, and in an increase in the volume of current accounts. The volume of current accounts increased by 29.4 percent in 2020, compared with an increase of 5.8 percent in 2019.

Another reflection of the public's demand is provided by the M2 aggregate, which includes M1 and unindexed deposits with a duration of up to one year. The pace of annual growth of deposits with a duration of up to one year slowed throughout the year. This shows that, in view of the low interest rate, the public preferred to hold its money in highly liquid assets. In 2020, one-year deposits grew by 12.3 percent, compared with an increase of 33.2 percent in 2019. Against that, there was a sharp increase in current credit deposits (CCR)—self-renewing daily deposits that can be withdrawn at any time—and in fixed-term deposits of up to 3 months.

According to the commonly accepted framework for analyzing monetary policy, the changes in the monetary base on their own have no particular importance relating to the effect on the economy. The factor that is relevant to the economic decisions of market participants is the expected interest rate path, which the central bank influences by setting the monetary interest rate. The change in the monetary base

Table 3.2
Source of change in the monetary base, 2016–20

		(NIS billion)				
		2020				
		I	II	III	IV	
1. Injections from the government and the Jewish Agency <i>of which: the government</i>		21.39	20.96	-9.09	13.96	
2. Foreign exchange conversions^a <i>of which: Bank of Israel</i>		21.39	20.96	-9.09	13.96	
3. Total (1+2)		72.14	27.95	28.50	22.35	
4. Bank of Israel injections <i>of which: Monetary loan</i>		72.14	27.95	28.50	22.35	
<i>Makam</i>		93.53	48.92	19.41	12.01	
		-66.82	-43.36	-11.88	-33.68	
		19.56	4.59	7.65	7.32	
		33.08	19.01	2.01	4.01	
Swap		0.00	0.00	0.00	0.00	
Bank term deposits		0.00	0.00	0.00	0.00	
Interest ^b		-171.00	-78.00	-34.00	-59.00	
Bond purchases		0.51	0.12	0.13	0.13	
Repo		49.53	14.90	12.32	13.84	
		1.50	-3.98	-0.01	0.02	
5. Total change in the monetary base		26.71	5.56	7.52	-21.68	

^a This item includes, among other things, receipts (payments) in foreign exchange that the Bank of Israel and the government receive from (transfer to) the private sector, for instance income tax. These payments do not change the monetary base. They appear in the section on government injections, and in this section with the opposite sign.

^b Excluding *makam*.

SOURCE: Bank of Israel.

is only a byproduct of changes to the monetary interest rate and of changes in the public's demand for cash. In a situation in which the central bank interest rate reaches the lower bound, changes in the monetary base that are not due to these factors, but rather to central bank actions such as asset purchases (quantitative easing). However, the interest rate's proximity to the lower bound is due precisely to the fact that the economy is already saturated with liquidity. It is reasonable to assume that when the interest rate rises again, the liquidity that was injected earlier will be partly reabsorbed.

Table 3.4
Rate of change in the monetary aggregates, 2017–20

Rate of change in the monetary aggregates, 2017-20								
	0	1	2	1+2=3	4	5	3+4+5+6=7	
	Monetary base ^a	Cash held by the public	Current accounts	M1 ^b	Term deposits up to 3 months	Term deposits up to one year	SRO ^c	M2 ^d
	(Average in December compared to average the previous December)							
2017	6.4%	6.5%	14.2%	12.6%	-2.0%	-2.8%	16.2%	8.4%
2018	6.0%	6.6%	13.6%	12.2%	-15.6%	-4.3%	1.1%	2.0%
2019	2.9%	1.8%	5.8%	5.1%	-4.0%	33.2%	7.0%	6.3%
2020	25.8%	23.3%	29.4%	28.3%	25.6%	12.3%	28.5%	26.2%
Jan-20	3.4%	2.1%	5.3%	4.7%	-2.5%	30.1%	3.3%	5.2%
Feb-20	3.9%	2.4%	7.1%	6.2%	-0.9%	28.0%	2.3%	6.0%
Mar-20	8.6%	3.9%	16.9%	14.4%	-0.2%	22.9%	5.7%	10.5%
Apr-20	10.4%	5.9%	23.4%	20.1%	4.1%	11.7%	15.5%	15.4%
May-20	14.7%	9.9%	23.5%	21.0%	10.9%	12.4%	16.2%	17.3%
Jun-20	14.7%	11.3%	23.3%	21.1%	18.6%	11.1%	15.0%	18.2%
Jul-20	17.1%	13.4%	25.0%	22.8%	18.7%	13.4%	15.4%	19.4%
Aug-20	19.8%	18.0%	27.5%	25.7%	19.6%	11.5%	18.8%	21.6%
Sep-20	21.5%	19.2%	28.3%	26.6%	20.4%	14.6%	17.8%	22.2%
Oct-20	22.7%	19.7%	28.0%	26.5%	22.3%	16.1%	20.8%	23.4%
Nov-20	23.1%	22.4%	30.2%	28.8%	23.8%	16.5%	21.6%	24.9%
Dec-20	25.8%	23.3%	29.4%	28.3%	25.6%	12.3%	28.5%	26.2%

SOURCE: Bank of Israel.

Box 3.1

“COVID-BASKET” INFLATION IN ISRAEL

- Significant shifts in the composition of consumer spending as a result of the COVID-19 crisis are liable to complicate the interpretation of the official inflation data that are calculated by the Central Bureau of Statistics (CBS) on the basis of a fixed basket.
- In this box, we use credit card expenditure data in order to construct a consumption basket that is more optimally representative of the composition of consumption during the COVID-19 period, and we use it to calculate the rate of inflation adjusted to the basket (hereafter: COVID-basket inflation).
- We find that COVID-basket inflation is not materially different from the inflation measured by the CBS. Only the contribution of the various goods and services to inflation, and in particular those of housing and transportation, changed significantly, particularly during the first and second lockdowns.
- The bias in inflation during the COVID period in Israel is small relative to that in other developed countries.

Introduction

In normal times, the Central Bureau of Statistics CPI calculation is based on fixed weights, which are updated every two years according to the average consumption basket derived from the Household Expenditure Survey.¹ The use of fixed weights that change every two years makes sense if we wish to measure the change in prices of a fixed basket rather than only temporary changes in the cost of the consumption basket, which represent adjustments in consumption patterns as a result of, for example, changes in relative prices.

The COVID-19 pandemic led to immediate changes in the lifestyles of many consumers, including significant changes in consumption habits (Chetty, et al. 2020; Goolsbee and Syverson, 2020). The lockdowns, restrictions and changes in economic behavior among the public led to a drop in the proportion of goods and services consumed outside the home and in the weight of nonessential goods. As such, the weight of expenditure on housing rose and the weight of expenditure on transportation fell within the average consumption basket (primarily during the first and the second lockdowns).² As a result of these changes, the CBS’s fixed consumption basket used in the calculation of the CPI did not represent the actual consumption basket during this period, and is therefore liable to cause a “biased weighting”, i.e.

¹ The last update prior to the COVID-19 pandemic was in January 2019. Another update was carried out in January 2021, in which a limited number of components were adjusted to reflect the impact of the pandemic based on credit card expenditure data. See more details at: <https://shorturl.at/gxMOX>

² The expenditure on housing remained approximately fixed, but its share within the consumption basket grew due the drop in expenditure on the rest of the components. In contrast, expenditure on transportation declined in absolute terms as a result of the restrictions on movement, and also relative to the other components.

a biased calculation of inflation due to the significant shifts in the composition of the basket during that period.³

In order to measure the change in the composition of the household consumption basket and its effect on the measurement of inflation, this box uses data on credit card expenditure according to industry to adjust the CPI weights so that they will more accurately reflect consumption habits during the COVID-19 period.

A number of recent studies have examined the biases in the measurement of inflation during the COVID-19 crisis. This box is related to the literature on the measurement of weighting biases based on the use of dynamic weights estimated using consumer expenditure data. Cavallo (2020) uses data on credit and debit card expenditure in the US in order to estimate the changes in the consumption basket during the COVID-19 crisis, and finds a negative bias in the official rate. In other words, COVID-basket inflation is significantly higher than the official rate. On the assumption that the change in consumption in the US also took place in other countries, he finds a negative bias in inflation for the month of May in most of the other countries he examines, although the size of the bias varied. Seiler (2020) presents additional support for those findings using data on credit card expenditure in Switzerland. Reinsdorf (2020) strengthens the claim on the basis of a similar analysis, but adds a comparison to the data on changes in consumption behavior in Canada, groups countries geographically, and expands the sample period to include the period from February until May (covering the entire first lockdown in most of the world). Overall, most of the bias in inflation estimates in the majority of the examined countries was due to the increase in expenditure on food and the drop in expenditure on transportation.

Methodology and data

As part of the response to the COVID-19 crisis, the Bank of Israel created a database for monitoring various real and financial indicators.⁴ In order to estimate the change in an item's weight in the consumption basket relative to the base months (January to February)⁵, or in other words to obtain the adjusted weight, we used the daily volume of credit card transactions. In particular, and following Cavallo (2020), we multiply the rate of monthly change in each item (as measured by the CBS) by the adjusted weight and obtain its adjusted contribution to COVID-basket inflation.⁶

³ Additional biases in the CPI can occur as a result of problems in the measurement of the CPI in the locked down sectors and due to changes in the quality of consumed services due to the health risk they involve. For further details, see Box A.2 in the Monetary Policy Report for the first half of 2020 – “Inflation during the Coronavirus Pandemic: Challenges in Measurement and Interpretation”.

⁴ Press release regarding the creation of the database in response to the COVID-19 crisis:

<https://www.boi.org.il/en/NewsAndPublications/PressReleases/Pages/20-5-2020.aspx>

⁵ A reservation with respect to the findings is that they do not take into account changes in the volume of cash use during the crisis. If, for example, the public did not change its expenditure on one of the items, but rather switched to purchasing it in cash rather than by credit card, there will be a downward bias in the weight we have calculated.

⁶ The formula for updating the weights is:

$$w_{COVID,t}^i = \frac{e_t^i}{e_0^i} w_{LAMAS}^i / \sum_i \frac{e_t^i}{e_0^i} w_{LAMAS}^i$$

where e_0^i represents the average credit card expenditure on item e_t^i during January–February 2020, represents credit card expenditure on item w_{LAMAS}^i during month and represents the official weight of item in the calculation of the CPI.

In order to translate the changes in the weights of credit card expenditure to the CPI weights, a number of modifications are necessary, since the classification of credit card expenditures is not the same as CBS classification of the CPI components.⁷ Alongside these modifications, we assume that the expenditure on food (not including meals eaten out) and on fruits and vegetables changed at the same rate, that expenditure on housing remained constant⁸, and that expenditure on “miscellaneous” goods and services changed at the same rate as total expenditure.

Findings

Figure 1 presents the estimated development of the CPI weights. The effect of the March–May and September–October lockdowns can clearly be seen. In contrast, there was no significant effect on the basket’s composition in December. The drop in income and the severe restrictions on the consumption of many goods led to a reduction in expenditure on those goods and, as a result, a significant increase in the weight of the housing component, alongside declines in the weights of the other items, particularly transportation and entertainment.

Figure 2 presents the estimates of COVID-basket inflation alongside the official inflation rate on a monthly and annual basis. The figure shows that the decline in the use of modes of transportation as a result of the restrictions on movement and the closure of businesses and workplaces, along with the sharp drop in energy prices, led to a negligible negative bias in inflation as measured by the CBS.⁹ On an annual basis, a negligible downward bias was found in the official inflation rate. Thus, the annual official inflation rate is only about 0.2 percentage points lower than the COVID basket inflation rate. In contrast, an examination of the core index, which does not include food, fruits and vegetables, and energy (not presented), items whose consumption was highly affected (relative to the other items), shows a small positive bias in the measurement of inflation, primarily due to the exclusion of energy.

As mentioned, the COVID-19 crisis and the accompanying economic restrictions are a global phenomenon, and it can be assumed that the effects will be similar across countries. Figure 3 presents an international comparison of the weighting bias in inflation for the month of May 2020. The figure for Israel was calculated by us while the data for the rest of the countries are taken from Cavallo (2020). One can see the heterogeneity in the size of the bias and even in its direction, though the bias is usually negative (i.e. the official rate of inflation is lower than the COVID-basket inflation), which is also the case for Israel. This provides evidence that the response of the public and the government to the pandemic has had a fairly uniform effect on the consumption basket.

⁷ Most of the main items in the CPI have been adjusted according to the parallel categories of the credit card data. The dwellings maintenance and furniture and household appliances items was aggregated from two categories. The sub-item of meals eaten outside the home was removed from the food component and added to culture and entertainment in order to improve compatibility with the credit card data.

⁸ In the April index, the CBS carried out an examination of reductions in rent. It found that rent was reduced in only a small proportion of the contracts (3 percent). Since then, there has not been any additional survey to determine whether rents have been reduced. However, as part of the regular checks carried out during the lockdowns, renters were asked whether their rent was reduced. In recent months, it was found that rent was reduced for only a small proportion of renters (0.3 percent).

⁹ Even when constant weights are assumed over the course of the entire year according to the consumption basket for April (the month in which there was the largest shock to the consumption basket), similar results are obtained, primarily with respect to the effect of the rise in energy prices that began in June.

Figure 1
Development of the Current Weights of CPI Components, 2020

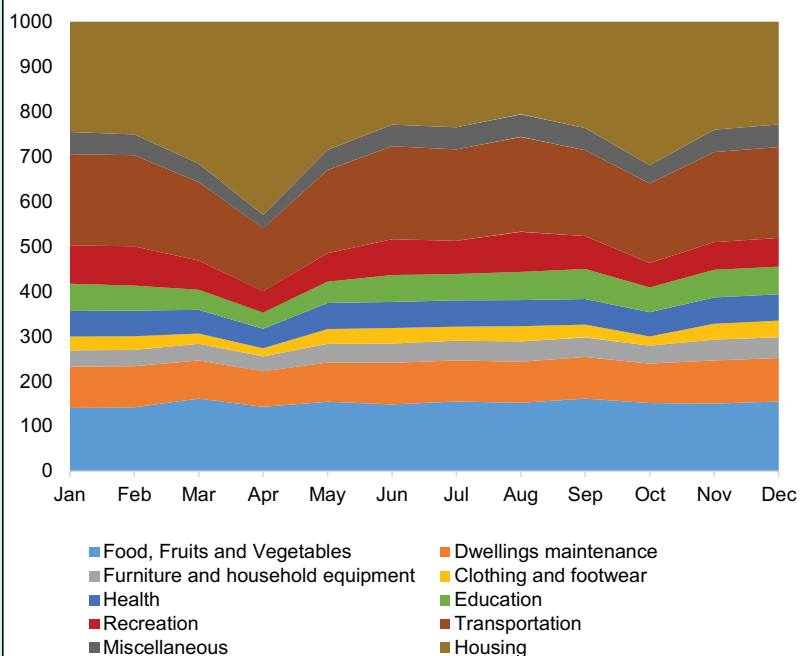
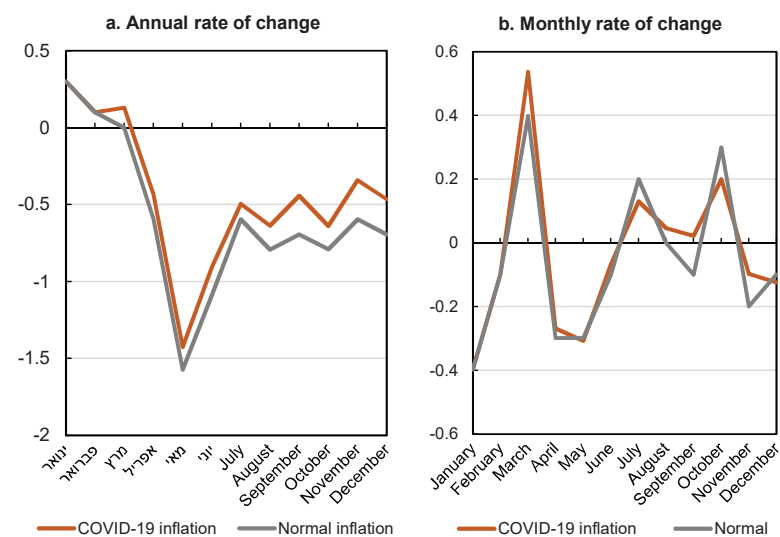
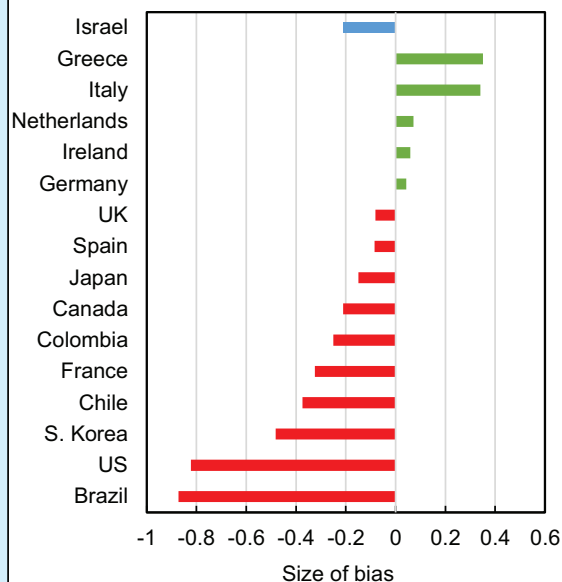


Figure 2
Monthly and Annual Changes in the Consumer Price Index, Fixed Weights vs COVID-19 Weights (percent)



SOURCE: Based on Central Bureau of Statistics.

Figure 3
Int'l Comparison of Inflation Weighting
Bias in May 2020 (percentage points)



SOURCE: Based on Cavallo (2020).

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Box 3.2

QUANTITATIVE EASING - CENTRAL BANK INTERVENTION IN THE GOVERNMENT BOND MARKET

1. Introduction

The reduction of the monetary interest rate to a level of near zero makes it difficult to carry out a traditional accommodative monetary policy. Therefore, in the context of the COVID-19 crisis, the Bank of Israel, like many other central banks, adopted nontraditional policy measures this year, including “Quantitative Easing (QE)”, in which it purchased long-term government bonds in the secondary market.¹ Several countries implemented such programs following the 2008 Global Financial Crisis, and other countries did so in 2020, due to the COVID-19 crisis. This box will describe the purposes of using QE as a tool for monetary accommodation,² including quantitative findings from around the world, and will review a number of potential risks associated with such accommodation.

2. Channels of Influence

When the monetary interest rate is close to its lower bound, central banks may try to directly influence medium- and long-term yields by purchasing government bonds. The impact of the purchases is generally divided into two main channels: the “signaling channel”, which mainly affects the expected path of the monetary interest rate, and the “portfolio rebalancing channel”, which mainly affects the spread between the bond yield and the average monetary interest rate expected to prevail over the life of the bond.

Through the signaling channel, the purchase of long-term government bonds by the central bank lowers the yield curve because it leads the public to believe that the central bank will raise interest rates later or more slowly than previously expected. The accepted explanation is that raising the monetary interest rate faster than the rate inherent in the bond prices will lead to their devaluation and, therefore, central banks that have purchased a large amount of long-term bonds will avoid such an interest rate increase.³

The portfolio rebalancing channel includes several subchannels, through which the purchase of government bonds leads to a decrease in yields not due to a decline of the expected monetary interest rate path, but due to the effect on the spread above this path. One of these is the “duration risk channel”: The decrease in the amount of long-term bonds held by investors in the market, after the central bank has purchased some of them, reduces the average duration risk, so the risk premium they will charge on these assets will be lower. Another subchannel through which the purchases may affect the spread is the “safety channel”. One of the motives for investors to hold government bonds is to use them as collateral for many transactions in the market. When the central bank purchases government bonds, it reduces their supply in the market, and therefore leads to an increase in the price that investors are willing to pay for them, and accordingly – to a decrease in the yield required on them.

¹ The Bank of Israel implemented a similar program in 2009. Another tool that the Bank of Israel used this year was the purchase of corporate bonds. This box will not discuss such purchases.

² Bond purchases may also help in cases of liquidity distress in the markets.

³ While it is common to argue that central banks should not take profit and loss considerations into account, in practice many of them seem to attach importance to their equity level, as insufficient equity may impair their independence. (For example, a decline below a certain level may require an injection of capital from the fiscal authority.)

Whether the decline in the yield curve on government bonds is due to the signaling channel or the portfolio rebalancing channel, a number of mechanisms may intensify its impact on yields and on other interest rates in the market. First, to the extent that the decline in the curve leads to an improvement in economic activity, it will contribute to a decrease in the credit risk of firms and households. Second, to the extent that rising bond prices ease the capital constraints of various financial intermediaries, they will be able to increase the amount of credit they provide.

3. Estimated Effects of Government Bond Purchases around the World

Most of the literature finds that the purchase of assets by central banks has indeed led to a significant decline in long-term government bond yields.⁴ Evidence was found for the effects of both the signaling channel and the portfolio rebalancing channel.⁵

A key question is how persistent the decline in yields is, as a short-term decline alone is not expected to significantly support activity and inflation. An empirical estimation of the persistence is not straightforward. The further away from the date of the announcement of the purchase program or from the date of its implementation, the more difficult it is to attribute the development of yields to it. Bernanke (2020) concludes, based on the overall findings in the literature, that the impact on yields has been largely permanent.

Another key question is whether bond purchases are effective only in times of financial distress in the markets, for example when yield spreads are abnormally high, or also in normal times. Since the portfolio rebalancing channel works by reducing yield spreads, purchases through this channel are likely to be less effective during normal periods, when the spreads are lower. However, D'Amico and Seida (2020) found evidence that the effect of bond purchases in the United States did not weaken when the situation in the financial markets improved, or when additional rounds of purchases were made. Similar findings were obtained in other studies, and research evidence shows that the impact of asset purchases does not weaken significantly during normal periods in the financial markets. For more information, see Bernanke (2020) and Gagnon (2016).

As for the effect on additional variables, a number of studies have found that declining government bond yields has led to a decrease in private bond yields, an increase in stock prices and a depreciation of the domestic currency.⁶ Beyond that, most studies on the subject found that the various QE programs had a positive effect on activity and inflation.⁷

⁴ For example, Gagnon et al. (2011), Krishnamurthy and Vissing-Jorgensen (2011), Gagnon (2016), and Kuttner (2018). In a more recent context, see Hartley and Rebucci (2020).

⁵ See Bauer and Rudebusch (2014) and Krishnamurthy and Vissing-Jorgensen (2011).

⁶ See Neely (2010) and Gagnon et al. (2011).

⁷ A review of 54 studies by Fabo et al. (2020) (on the US, the UK, and the Eurozone) shows that the purchase of bonds totaling 1 percent of GDP resulted in an average cumulative increase of 0.14 percent in the GDP, and of 0.12 percent in the level of prices. The results show that there is considerable variance between countries, between different programs in the same country, and sometimes also between different studies conducted regarding the same program. The main finding of the paper is that studies conducted by researchers at central banks presented stronger effects on average than those conducted by researchers from the academic world.

4. Possible Risks of Quantitative Easing

Along with the effects described above, the academic and public discourse also includes reference to possible risks of quantitative easing. This section addresses the main ones.⁸

a. Financial risks

Like conventional monetary policy, quantitative easing also lowers the yield curve, which could encourage risk-taking beyond what is desirable—for example through yield-chasing—due to lower yields on solid long-term alternatives. Encouraging risk-taking is one of the channels through which monetary policy contributes to the expansion of activity, but the policy must balance the expansion of demand and the maintenance of financial stability. In this respect, it is interesting to note a particular advantage of quantitative easing over conventional monetary policy: Unlike conventional policy, the impact of quantitative easing is focused on the long part of the curve, therefore flattening its slope (i.e. it reduces the spread between long and short returns). In doing so, it reduces the exposure of banks' balance sheets to maturity mismatch, which results from commercial banks' use of short-term liabilities to provide long-term credit. Bernanke (2020) notes that overall, quantitative easing programs have so far had a beneficial effect on financial institutions, without it being reflected in excessive risk-taking.

b. Impact on market functioning

Another risk is that a large-scale intervention by the central will lead to a reduction in the trading volume of private market participants, thereby impairing the “price discovery” mechanism and liquidity in the markets in which the bank has intervened.⁹ For such reasons, Bernanke (2020) notes, purchase programs often also include restrictions on the amount of holdings of a given type of bond or a particular maturity date. Another effect to consider is a future contraction of the central bank balance sheet. Whether the balance sheet is automatically contracted when bonds held by the bank reach maturity¹⁰, and whether the Bank sells the bonds in the market, it must be ensured that the scope and timing of the contraction measures will not adversely affect the functioning of the markets.

Central bank independence and the inflation targeting regime

The stability of the inflation targeting regime is based on the separation of powers that includes the independence of the central bank. The practice of quantitative easing programs is accompanied by a discussion of risks to the central bank's independence, for two reasons. First, bond purchases lead to an expansion of the bank's balance sheet. This is accompanied by exposure to interest rate and revaluation

⁸ This section is based in part on Bernanke (2020), which describes the risks that the Fed executives have addressed in their discussions on quantitative easing programs.

⁹ The term ‘price discovery’ refers to the market participants’ ability to agree on the price of an asset, and one of the ways it is expressed is the speed with which new information is embodied in the asset's price.

¹⁰ It is customary for government bond redemption to be accompanied by a parallel issuance as part of the debt “rollover” – a new debt issue against the debt that has reached maturity. The redemption of bonds held by the central bank, and its “rollover”, means a sudden increase in the volume of bonds offered in the market.

risk (i.e. capital losses due to an unexpected rise in the yield curve).^{11, 12} There is concern that significant losses will require fiscal intervention, which could threaten the independence of the central bank.^{13, 14} Second, quantitative easing reduces the costs of financing government deficits. Although the reduction in government financing costs may be a consequence of the central bank's striving to meet its targets, especially the inflation target, there is a risk that deficit financing will become a consideration in itself ("fiscal dominance"), confidence in the central bank's ability to maintain the value of the currency will be damaged, and the risk of an inflationary eruption will increase.

From the accumulated global experience, it appears that the use of QE programs has not, so far, undermined the stability of the financial system, significantly impaired market functioning, or led to inflationary outbursts. It also appears that neither the central banks' independence nor their ability to implement the required policy have been affected.

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¹¹ Such a potential loss may deter the central bank from raising interest rates even when the macroeconomic conditions justify such an increase.

¹² Despite this, it is important to understand that central bank losses do not imply losses to the public or to the economy as a whole. As Bernanke (2020) describes, the public is naturally hedged from such central bank losses, as in any case these will only be created when there is a turning point and economic activity expands. Such a development means that monetary policy has actually achieved its goal, and the expansion of economic activity is likely to be accompanied by an increase in public income and in the tax base, which will offset the central bank's balance sheet loss. In other words, the discussion of central bank losses is relevant because of the potential for various pressures on the bank, and not for purely economic considerations.

¹³ Bernanke (2020) indicates explicit concerns by some Fed members of a threat to its independence resulting from large-scale asset purchases.

¹⁴ The concern that the central bank will be forced to hold a very large amount of assets is sometimes cited as an argument in favor of an accepted approach in the implementation of QE programs—setting a quantitative target for the total bonds to be purchased. The alternative, according to which the central bank will declare a target yield and purchase the amount of bonds required to achieve it ("yield curve control") may require intervention on a very large scale.

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Chapter 4

Developments in the Business and Household Credit Markets

- The COVID-19 crisis was a major factor affecting private debt this year. In response to the effects of the crisis and in order to support the supply of credit, a number of measures were taken to encourage the provision of credit, including the creation of state-guaranteed loan funds, intervention in the bond market, easing of capital requirements in the banking system, monetary loans to encourage the providing of credit and the adoption of a program for deferral of debt payments. These measures successfully stabilized the markets, supported the supply of credit and reinforced economic activity.
- The crisis is likely to affect both the demand side (growth in demand for credit as a result of the need to finance current expenses while at the same time a reduction in demand as a result of high uncertainty) and the supply side (due to the possible increase in borrower risk and deterioration in the situation of lenders), and therefore it is difficult to disentangle the supply and demand effects.
- Business debt grew at a slow rate this year. Large businesses utilized their credit lines extensively at the beginning of the crisis, but eventually redeemed part of the additional debt. Small businesses obtained credit from the state-guaranteed funds (in addition to credit from the banking system). The interest rates on bank debt were stable this year.
- The private debt to GDP ratio rose, due to both the increase in household and business debt and the decline in GDP. The private debt to GDP ratio is still low relative to other countries.
- The beginning of the crisis was characterized by a withdrawal of savings from institutional investors. The extent of the withdrawals was dependent on the quality of the savings product. That is, the higher the tax benefits and the lower the level of liquidity, the lower was the rate of withdrawal. Thus, there were no anomalous withdrawals from the new pension funds during the entire period.
- During the first half of 2020, somewhat more than 9,000 businesses were officially closed. Relative to 2019, it appears that the revenue of some 70,000 other businesses—most of them in the trade and services industries—declined by at least 80 percent in August, and it appears that the risk of their closure has significantly increased. More than half of the businesses that recorded a drop of 80 percent or more in their turnover in August were micro businesses, such that the estimated effect of their closure on GDP, on the risk to the financial system and on the labor market is limited.
- Assistance to the business sector is a primary policy tool and a decisive factor in the attempt to maintain the functioning of the markets and business continuity during this period. Nonetheless, the across-the-board, prolonged and nonselective provision of grants and loans is liable to encourage the phenomenon of zombie firms¹, which are companies that have shown low performance over time but continue to operate in the market by rolling over their debt. The spread of this phenomenon, especially during the exit from the crisis, will have consequences for the recovery process, the allocation of financing sources and the economy's productivity.
- It was found that zombie firms (which according to estimates constitute on average about 7 percent of companies operating in the economy) is a recognized and long-observed phenomenon. It is to be found in many countries and does not constitute a major threat. However, it is worthwhile developing efficient and practical approval mechanisms in order to ensure that the support for business activity is channeled to industries that really need it.

¹ The term “zombie” came into wide use as a result of the crisis in Japan in the 1990s. The collapse of real estate prices and a long period of stagnation, as well as the resulting drop in productivity, led to an increase in the number of zombie firms, the weakening of the banking system, and the contraction of investment in healthy companies (Banerjee and Hofmann, 2020; Giannetti and Simonov, 2013; Caballero, Hoshi, and Kashyap, 2008). For a repeat and updated discussion and background on the danger inherent in zombie firms, see numerous recent publications (2020) in the Economist, Financial Times, and by the BIS.

1. INTRODUCTION AND MAIN DEVELOPMENTS

This section analyzes the changes in the financing sources of the nonfinancial private sector (households and businesses) in Israel. The financing is used by households and the business sector for consumption and investment, which is the source of its importance to economic activity. The section describes the main changes that occurred in the economy's debt during 2020. The main event that affected debt this year is the COVID-19 crisis, which began early in the year and led to a significant contraction of economic activity and a resulting loss of income.

On the demand for credit side, the crisis was expected to increase the demand for credit among businesses and households in order to finance their current expenses, but at the same time the high level of uncertainty was liable to reduce the demand for credit—by businesses whose need for working capital and for investment had declined and by households who had reduced their level of consumption. On the supply of credit side, the crisis was liable to reduce the supply of credit due to the potential increase in borrower risk (and deterioration in the situation of lenders). The Bank of Israel and the government took numerous steps to stabilize the markets and support the provision of credit, including intervention in the bond market, reduced capital requirements in the banking system, designated monetary loans in order to expand the supply of credit, creation of an infrastructure to expand the variety of assets that the banks can use as collateral against credit, easing of regulations, creation of state-guaranteed loan funds and creation of a program for the deferral of loan payments. In view of these steps, the bond issuance market recovered following its stagnation at the beginning of the crisis; businesses and households deferred loan repayments on a significant scale (although by January 2021, over 80 percent of them had already renewed their payments); and businesses (primarily small ones) turned to the state-guaranteed funds, among others, for credit, in addition to the banks. An analysis by industry, which is presented later in this Section, shows that the policy measures that supported the supply of credit contributed to the maintenance of economic activity.

Debt was characterized by a mixed trend this year. Large businesses utilized credit lines with the banks at a large scope at the start of the year, as did large businesses in other countries and during periods prior to the crisis. This was a manifestation of the high level of uncertainty regarding the continuation of the credit market's efficient functioning. At a later stage, when there was already less uncertainty, they redeemed the addition to their debt. Against the background of a decline in private consumption, households reduced their level of nonhousing debt, but continued to increase their housing debt at a relatively rapid pace. With the decline in GDP during the course of the year, the private debt to GDP ratio rose (a result of increases in both the household debt to GDP ratio and the business debt to GDP ratio). The interest rates on the debt of large and medium-sized companies remained relatively unchanged from the previous year while the interest rates on the debt of small businesses even dropped somewhat.

Box 4.1 analyzes the withdrawals of savings from institutional investors during 2020, primarily at the start of the COVID-19 crisis in March. It is found that the level

The dynamic of credit in the economy was disrupted on both the credit demand side and the credit supply side.

The Bank of Israel and the government of Israel took multiple steps to stabilize the markets and support the provision of credit, including intervention in the bond market, the provision of monetary loans, a program for deferral of loan repayments and the creation of state-guaranteed loan funds.

The trend in debt was not uniform over the year. Large businesses obtained bank credit while small businesses took advantage of state-guaranteed loan funds. Households increased their housing debt while reducing their nonhousing debt.

of withdrawals is dependent on the type of the savings product. Thus, to the extent that the product has greater tax benefits and a lower level of liquidity, the rate of withdrawal was lower. The rate of withdrawal from mutual funds in March was even higher than during the financial crisis of 2008, apparently and primarily due to the effect of shocks to the markets, which led to withdrawals from all of the investment channels. In contrast, there were no anomalous withdrawals from the new pension funds, but only a decline in deposits as a result of the lockdown. The provident funds and study funds, which showed a low rate of withdrawal, were characterized by a major shift to more conservative channels, which meant that investors did not benefit from the correction in the markets and had locked in their losses.

An examination of the main trends in the financing of the business sector is accompanied this year by an analysis of two important issues: (a) the scope of businesses closures in the economy during the COVID-19 crisis (Box 4.2); and (b) the danger in maintaining and encouraging the phenomenon of zombie firms—companies with low performance that are not managing to cover their debt servicing over the long run but continue to operate in the market thanks to “artificial resuscitation”, while rolling over their debt (Box 4.3).

Identifying the scope of these two phenomena is particularly challenging this year, due to the difficulty in assessing the effects of the crisis on the business model and on the expectations of firms in the medium and long terms, and in defining their current legal status. The permanent closure of companies in excess of the trend due to the standard business cycle (which is reflected in the closure of about 40,000 to 50,000 business annually), the laying off of workers, the bankruptcy process, and payments to creditors are all liable to deepen the current recession and transform it into a longer-term downturn. In contrast, the financing of companies that are not sustainable can lead to the distortion of market mechanisms, the suboptimal allocation of resources and financial assistance, and an adverse effect on the recovery efforts and productivity in the long term.²

According to the reports of the Israel Tax Authority for the first half of 2020, about 9,000 businesses were officially closed, which represents about 33 percent less than the figure for the parallel period in the previous year. Box 4.2 is based on the decline in turnover during the months July–August, during which there were only modest restrictions on movement in most industries. It presents an estimate of the number of businesses whose situation worsened significantly, although they did not officially close, such that their risk of closure increased substantially. According to this estimate, about 70,000 businesses—most of them in the trade and services

The private sector debt to GDP ratio rose. However, its level is low relative to other countries.

The main trends in the financing of the business sector were accompanied by two main phenomena this year: the volume of business closures in the economy during the COVID-19 crisis and the phenomenon of zombie firms—companies with low performance that continue to exist due to “artificial resuscitation” while rolling over their debt.

² The term “zombie” came into wide use as a result of the crisis in Japan in the 1990s. The collapse of real estate prices and a long period of stagnation, as well the resulting drop in productivity, led to an increase in the number of zombie firms, the weakening of the banking system, and the contraction of investment in healthy companies (Banerjee and Hofmann, 2020; Giannetti and Simonov, 2013; Caballero, Hoshi, and Kashyap, 2008). For a repeat and updated discussion and background on the danger inherent in zombie firms, see numerous recent publications (2020) in the Economist, Financial Times, and by the BIS.

About 80,000 businesses had their operations interrupted or reduced by at least 80 percent. Most of them are micro businesses, such that the estimated effect of their closure on GDP, on the risk to the financial system, and on the labor market is limited.

industries—experienced a drop in turnover of 80 percent or more during July–August 2020 relative to the same period in 2019. About 60 percent of the businesses for which the risk of closure appears to have increased are micro businesses with annual revenue of up to NIS 300,000. The aggregate turnover of these businesses is estimated to be only about NIS 5 billion, which reflects their relatively unimportant contribution to GDP, as well as the limited credit risk to the financial system as a result of their closure. With respect to the effect on the labor market, it is estimated that a high proportion of micro businesses whose risk of closure increased are self-employed individuals who do not have any employees.

Against this background, and despite the not insignificant harm to the life cycle of companies, the efforts of the central banks and governments to mitigate the destructive effects of the COVID-19 crisis by means of assistance programs to the business sector constituted an important policy tool, and were a decisive factor in the attempt to maintain the functioning of the markets and support business continuity. However, these efforts also raised the tax burden and, as a result of their nonselective distribution, are liable to create a moral hazard. This is due to the absence of an efficient approval mechanism with a goal of ensuring that assistance is primarily provided to companies that genuinely need it. In other words, the nondiscriminatory policy measures that were adopted in order to support business activity raise concerns that zombie firms, namely unsustainable companies, are being kept alive and nurtured.

The phenomenon of zombie companies in Israel prior to the crisis (which is estimated to include about 7 percent of active companies in the economy—a level that is not exceptional relative to other countries) is a recognized and relatively stable phenomenon that does not constitute a large-scale threat. Moreover, due to the nature of the crisis, many companies that are currently classified as zombies are actually sustainable businesses that are experiencing a temporary liquidity shock due to the restrictions that led to a collapse in aggregate demand.

The intensity of the current shock requires broad intervention in order to prevent a worsening of financial distress in the economy—so the intervention is essentially a compromise between maintaining the functioning of the economy and the risk in continuing to finance companies that are in long-term distress and are not able to cover their debt service expenditure. However, decision makers must make difficult decisions according to guiding principles, which include reducing nondiscriminatory support of businesses in favor of focused support for industries and companies that have a relatively high potential for sustainability; limiting support only to industries in which there is solid evidence of market failure; strengthening the capital structure of companies and conditioning assistance on that basis; and also continuing to strengthen the mechanisms for bankruptcy and economic rehabilitation.

2. DEVELOPMENTS IN BUSINESS DEBT

a. Bank debt

Analyzing business debt to banks shows a difference in the effect of the COVID-19 crisis on large and small businesses. The former significantly increased their level of debt at the beginning of the crisis—apparently by extensively utilizing their credit lines—and later on in the crisis they redeemed the additional debt (Figure 4.2), such that over the course of the year their total debt grew at a low rate. This pattern may constitute evidence that large businesses did not experience any credit shortage but rather took on debt early on in response to the crisis. This pattern characterized large businesses in other countries at the start of the crisis and is evidence of their level of uncertainty at the start of the crisis as to the ability of the market to continue meeting the demand for credit as the crisis continued. The decline in the utilization of these credit lines over time points to a decline in uncertainty, in view of the fact that the banks and the capital markets continued to operate normally.

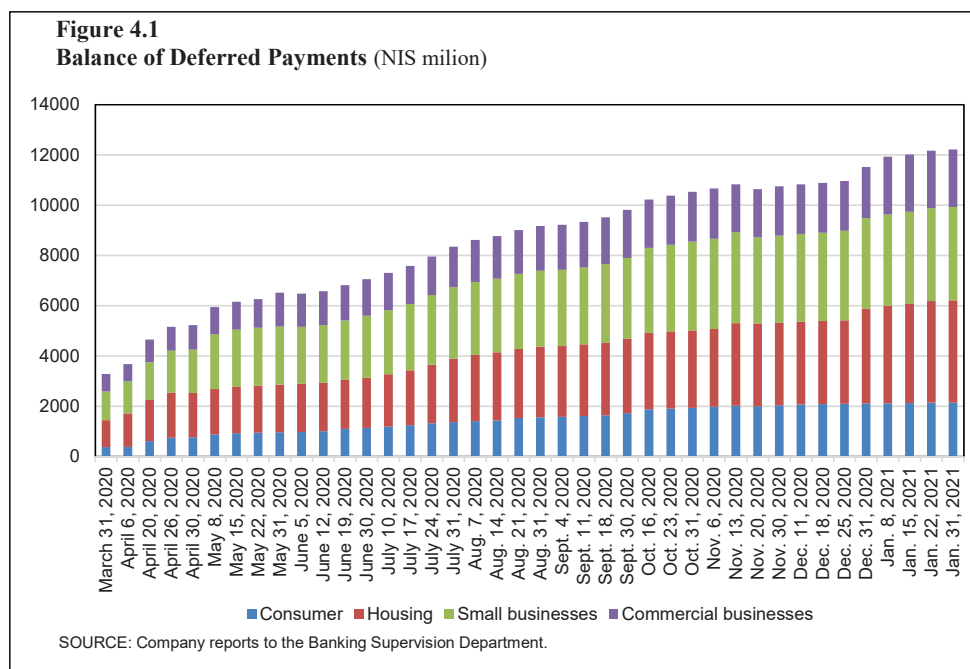
An analysis by industry shows that the industries characterized by high growth in their level of debt during 2020 included hotels and restaurants (which were closed during the pandemic and therefore took on debt in order to finance their current expenses) and real estate and construction (in which activity continued at a significant pace). The construction industry was exempted from the restrictions on activity and moreover, in order to support its activity in meeting the needs of the economy during the COVID-19 crisis and following it, the Banking Supervision Department even raised the industry credit limit that applies to it.³ This step made it possible to decouple the growth rate in credit to the construction industry from that of total bank credit to businesses. The industries that reduced their debt include manufacturing and financial services, including the regulated credit providers that provide nonbank credit to small businesses and households. As described below, regulated credit providers were particularly affected by the COVID-19 crisis, and the scope of credit that they provide dropped sharply, partly due to the problem of raising capital and increased customer risk.

Small businesses apparently found it difficult to obtain credit from the banks at the start of the crisis. In March, designated funds were created that provide state guarantees for bank credit to small businesses in order to mitigate the credit shortage. (For further details, see the section on state-guaranteed funds.) In parallel, the Bank of Israel initiated monetary programs for expanding the supply of credit to businesses. An industry analysis shows that the trade and manufacturing industries received a higher proportion of credit from these funds than their proportion of total bank credit.

Small businesses also took part in the program for payment deferral (see Figure 4.1) instituted by the Banking Supervision Department as part of the measures to deal with the COVID-19 crisis. The total volume of credit to small businesses for which

³ <https://www.boi.org.il/en/NewsAndPublications/PressReleases/Pages/7-12-2020.aspx>

payments were deferred reached a peak of about one-quarter of the total credit to this industry; however, by the end of the year payments were renewed on about two-thirds of the deferred credit (and on about 80 percent by January 2021).



Large businesses obtained credit from the banks while small businesses took advantage of the State-guaranteed loan funds. Interest rates for both large and small businesses remained stable.

Credit to small businesses grew at a slow rate (1 percent during the first three quarters of 2020). An examination of the difficulty in obtaining credit classified by business size shows that small (and medium-sized) businesses found it difficult to obtain bank credit (Figure 4.3). The credit they did obtain came primarily from the state-guaranteed funds.⁴ Bank credit was primarily channeled to large businesses, and during the first three quarters of the year bank credit to these businesses grew by 9 percent. Total bank credit to businesses grew this year by NIS 28 billion, which represents a growth rate of about 6.2 percent (compared to 6.4 percent in 2018 and 4.6 percent in 2019).

⁴ Further details on the State-guaranteed funds are provided below.

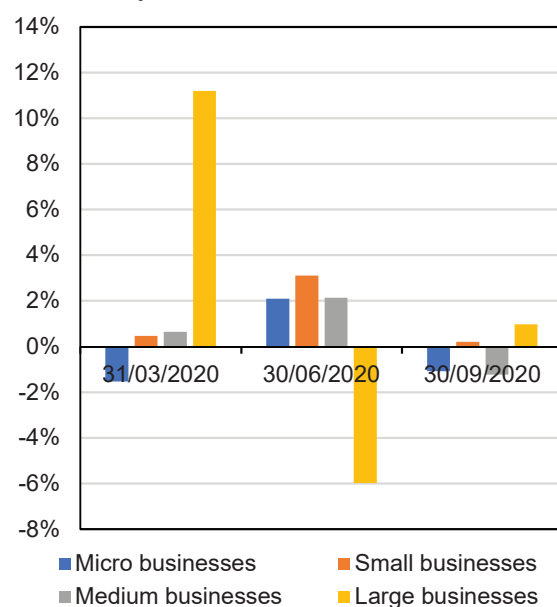
Table 4.1

The business sector's fundraising channels^a

	Balances, end of period, NIS billion					Change in balance during the period, percent ^b				
	12-2019	12-2020	6-2020	9-2020	12-2020	2019	2020	2020:Q2	2020:Q3	2020:Q4
1. Loans from the banks ^c	459	487	470	468	487	4.6%	6.2%	-1.5%	-0.6%	4.1%
2. Tradable bonds in Israel	205	212	208	212	212	0.1%	3.8%	1.9%	2.0%	0.2%
3. Nontradable bonds and nonbank loans ^d	116	112	112	109	112	8.0%	-3.0%	-0.7%	-2.2%	2.9%
of which : Loans from institutional investors	87	86	84	82	86	11.2%	-0.5%	1.5%	-2.7%	5.7%
4. Debt raised abroad ^e	183	174	164	174	174	4.9%	-4.8%	-6.3%	6.4%	0.0%
of which : Loans from nonresidents	156	139	138	138	139	7.2%	-10.9%	-6.9%	-0.2%	0.5%
Bonds	27	35	25	36	35	-7.0%	30.5%	-3.0%	42.5%	-1.7%
Total business sector debt	962	986	953	963	986	4.1%	2.5%	-1.5%	1.0%	2.4%

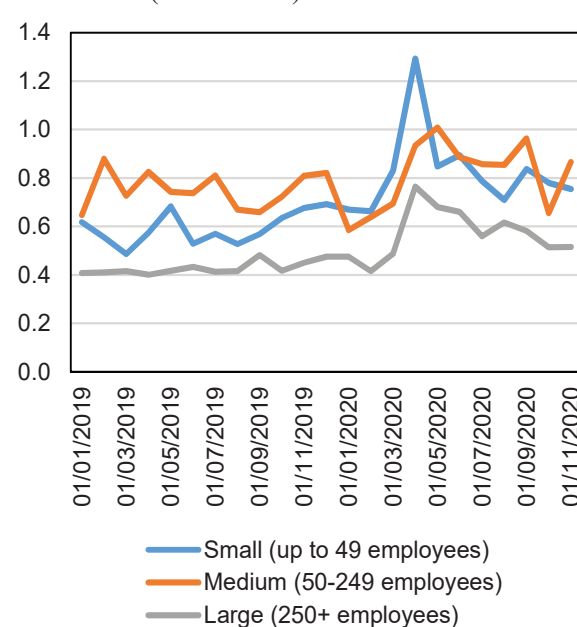
^a Excluding banks and insurance companies.^b In the current year, the change is from the beginning of the year.^c Loans from the banks are shown before doubtful debt provisions (based on solo data, Israeli residents only). Bond balances are shown by adjusted par value (capital registered for trading plus indexation differentials and interest not yet paid).^d Comprised of loans from institutional investors and credit card companies. Until August 2103, the mortgage-backed loans from institutional investors item was attached to household debt.^e Including holdings of Israeli corporate bonds abroad and loans from abroad.

Figure 4.2
Rates of Change (Quarterly) in Bank Credit, by Size



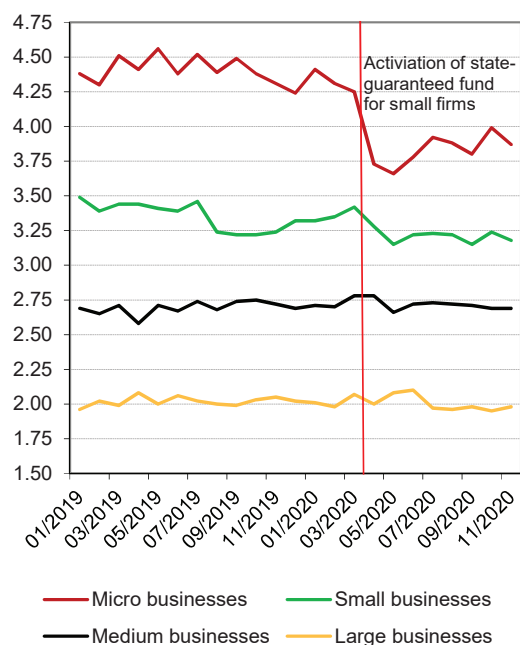
SOURCE: Bank of Israel.

Figure 4.3
Average Difficulty in Raising Credit, by Firm Size (scale of 0-3)



SOURCE: Bank of Israel.

Figure 4.4
Interest Rate on New Credit Given to Micro, Small, Medium, and Large Companies in the Unindexed Nominal Segment (percent)



SOURCE: Bank of Israel.

b. Nonbank debt

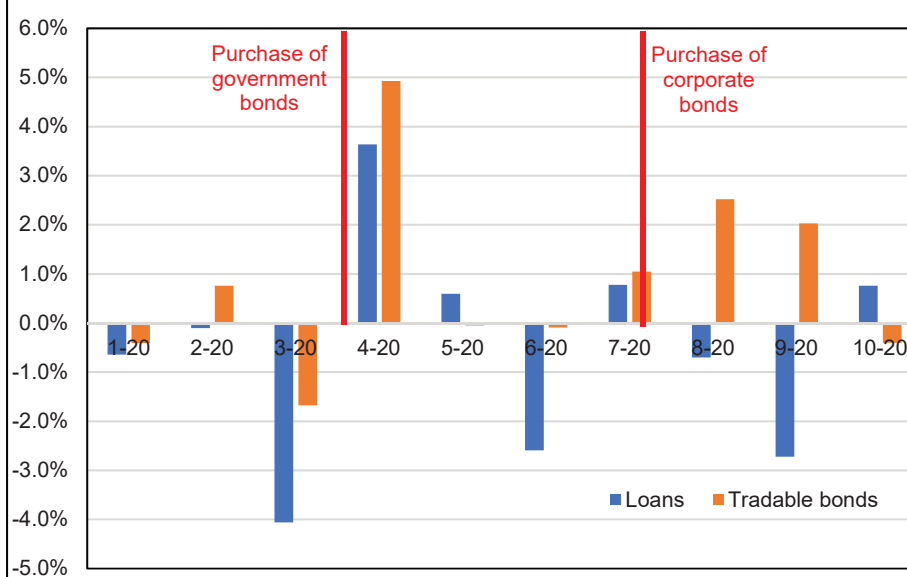
The Bank of Israel intervened in the markets on a significant scale, purchasing government bonds and later on corporate bonds, with the goal of providing liquidity to the markets and stabilizing them.

Nonbank (business) credit is for the most part obtained from institutional investors and foreign residents. (An additional, though small, component is obtained from regulated credit providers and credit card companies.) At the beginning of the crisis in March, the institutional investors had to deal with liquidity problems and high levels of withdrawals from the mutual funds. The Bank of Israel took a number of steps (which are described in Chapter 3 of this report), including the launch of a program to purchase government bonds (on a scale of NIS 50 billion, which was subsequently expanded by an additional NIS 35 billion); the provision of dollar liquidity by means of swap transactions in March; and a program to purchase corporate bonds (on a scale of NIS 15 billion) at the beginning of July. The Bank of Israel's activity contributed to stabilizing the markets. Bond-market yields, which rose sharply at the beginning of the crisis, began to decline after the launch of the program to purchase government bonds, and following the Bank of Israel's declaration of its intention to purchase corporate bonds they reached levels similar to those prior to the crisis. As a result of the stabilization of the markets, institutional investors again began providing credit.

Total debt to institutional investors grew slowly this year, but its composition changed over the course of the year. In previous years, the institutional investors preferred to provide credit by means of direct loans rather than tradable bonds, which was reflected in the higher rate of growth in direct loans. This year, in view of the crisis and the Bank of Israel's measures of support, this trend was reversed. While total debt to institutional investors by way of private loans declined, the balance of total tradable bonds grew rapidly. It appears that the growth in corporate bond activity followed the announcement by the Bank of Israel in July 2020 of its intention to purchase corporate bonds in order to support the market. The preference for tradable bonds over loans during the COVID-19 crisis characterized a number of countries around the world, and this may be related to measures taken by their central banks in order to support the financial markets.⁵ In Israel, the phenomenon was reflected in credit provided by institutional investors and nonresidents, against the background of the Bank of Israel's supportive measures in the bond market, which were similar to those of other central banks.

Figure 4.5

Credit from Institutional Investors by Instrument (rates of change)



SOURCE: Bank of Israel.

⁵ T. Goel and J. Garralda (2020), "Bonds and Syndicated Loans During the COVID-19 Crisis: Decoupled Again", *BIS Bulletin*, April.

The public's savings grew significantly, which was reflected in increased deposits at the expense of equities and bonds.

The crisis also impacted on the public's long-term savings, as reflected in the changes in the composition of its asset portfolio. As a result of the volatility in asset prices, the share of bank deposits within the portfolio increased significantly, while the proportion of shares and domestic bonds declined. The proportion of the portfolio managed by institutional investors shrank somewhat, thus halting the upward trend that had prevailed in previous years.⁶

c. The bond market—nonbank tradable debt

The COVID-19 crisis was manifested in the bond market by a sharp decline in prices (an increase in the spread between corporate bonds and government bonds), which began at the end of February. This derived from, among other things, the large-scale sales by mutual funds in order to obtain liquidity. At their peak, spreads reached levels similar to those observed during the European debt crisis in 2011 (though they were still less than the levels observed during the 2008–09 crisis). In March, the increased spreads on the higher-rated bonds began to fall while those on lower-rated bonds remained high and began to fall only later in the year, such that the disparity in spreads between the ratings widened during the period. The increase in spreads on lower-rated bonds during the period was liable to exacerbate the problem of issuing in the primary market, as will be discussed below.

As part of the response to the COVID-19 crisis, the Bank of Israel adopted a number of policy measures in order to provide liquidity and to stabilize the financial markets. (For further details, see Box 3 in the Financial Stability Report for the first half of 2020.) In March 2020, the Bank of Israel launched a program to acquire government bonds and to carry out dollar swaps with institutional investors; at a later stage (at the beginning of July 2020), it even declared that it would implement a program for the purchase of corporate bonds. As a result of the purchase of government bonds and the provision of dollar liquidity, spreads at the higher ratings began to decline, while those at the lower ratings fell only after the intervention by the Bank of Israel in the corporate bond market at a later stage.

In the primary market, issues dropped sharply at the onset of the crisis (in March), but recovered later on. Nonfinancial companies issued bonds on a similar scale as in previous years, while the banks and the insurance companies cut back their issues significantly. Overall, about NIS 52 billion (NIS 41 billion without the banks and insurance companies) was raised as opposed to NIS 62 billion (NIS 44 billion without the banks and insurance companies) on average during the previous three years. An examination of net issues (total issues less redemptions of principal) showed that those of manufacturing companies in 2020 were higher by NIS 1.5 billion than the average for the previous three years; in contrast, net issues of the financial companies were lower by about NIS 18 billion than the average for the previous three years.

⁶ For further details on the changes in the public's asset portfolio, see *Statistical Bulletin*, 2020.

The issues were concentrated primarily at the higher ratings while the issues at the lower ratings declined. The proportion of AA- and higher ratings reached 58 percent in 2020 (compared to an average of 46.8 percent during the previous three years), while the proportion of ratings between A- and A+ reached 38 percent (compared to an average of 33 percent during the previous three years). It appears therefore that the bond market functioned well at the higher ratings and the issues in that segment rose while spreads were maintained at close to their precrisis levels, which indicates that there was no difficulty in issuing bonds. In contrast, at the lower ratings there was a decline in issues, which was accompanied by an increase in spreads, a signal of a somewhat limited supply of credit and perhaps that poorly performing companies in the economy were experiencing a problem in obtaining credit. It appears that this is part of a broader phenomenon in which risk aversion increases during a crisis, wherein credit is allocated more to low-risk businesses (public companies with a high rating) and less to small companies and lower-rated public companies.

In an analysis by industry, those same industries that obtained loans from the banks also went to the corporate bond market to issue debt in the form of bonds. The most prominent examples with respect to the amount of capital raised relative to previous years are real estate and, to a lesser extent, manufacturing. The industry that raised the least relative to previous years (apart from finance, the banks, and the insurance companies) was trade and services. As described in Box 2.1 of Chapter 2 in this report, the real estate and manufacturing industries were less affected than other industries. At the same time, the trade and services industry was more affected, as a significant part of its activity is customer-oriented leading to a greater impact of the restrictions imposed. Also from the viewpoint of net issues, the industries that were prominent in raising capital at a higher rate than the average for the previous three years were real estate and construction and, to a lesser extent, manufacturing and trade and services. In contrast, the oil and gas industry and the investment industry raised less than during the previous three years.

d. The equity market

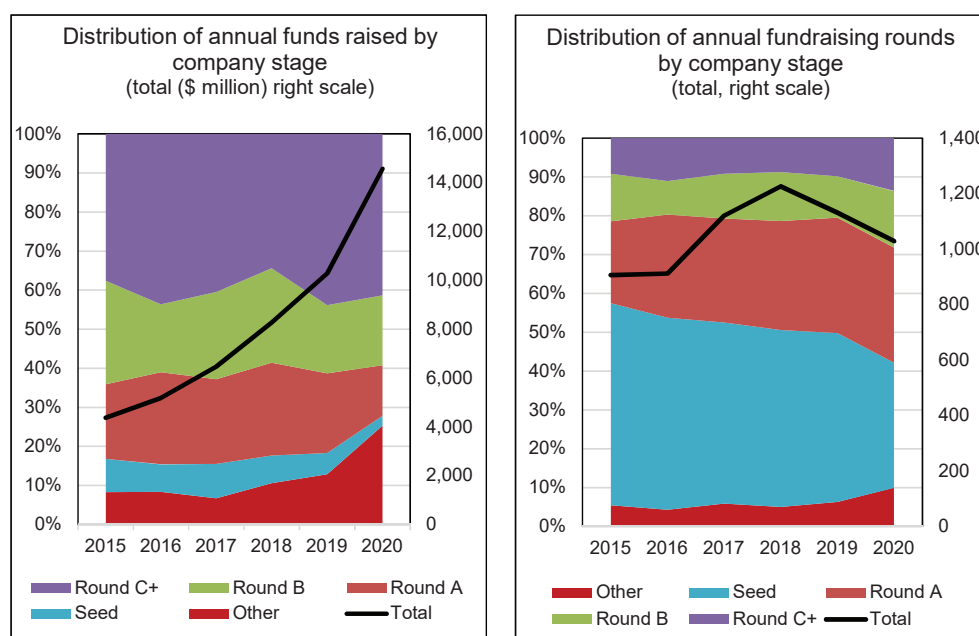
Equity market issues were affected by the crisis in a similar manner to bond market issues. Total issues dropped sharply between March and May, and recovered subsequently. With regard to the total amount issued, capital raised in 2020 was significantly higher than in 2019, totaling about NIS 12 billion (an increase of 43 percent relative to 2019). The year was also characterized by a record number of IPOs: 26 issues (the largest number since 2008), in which about NIS 4.5 billion was raised. Most of the issues (95 percent of the amount raised) were by means of book building—a nonuniform offer to institutional investors—a new method adopted by the TASE in 2019 (in that year, 29 percent of total IPOs used this method). In May 2019, the TASE published new directives that made it possible to issue participation units in R&D partnerships, and four such partnerships were listed for trade during the second half of 2020. Eighteen out of 26 companies who carried out new issues were

The number of initial offerings reached its highest level in the past decade. The level of capital raised by the high-tech sector, by way of both the stock market and the venture capital funds, was particularly high.

from the high-tech industry. This industry, which is characterized by an ability to operate remotely, and which enjoyed growing demand for its products, grew during the COVID-19 crisis. The issues in the technology industry totaled NIS 4.7 billion this year (including NIS 1.7 billion raised abroad). The capital flows, together with the surplus in the current account and the increased purchases of financial assets by foreign buyers when Israel was included in the WGBI, contributed to the appreciation of the shekel, as described in Chapters 2 and 3 of this report.

This was a record year in terms of venture capital raised by Israeli high-tech companies (Figure 4.6, right panel). However, total capital raised and the number of capital-raising rounds by companies in the Round A and seed stages declined this year, with the largest drop being recorded in the financing of startup companies in the seed stage (a 35 percent drop in the amount raised and a 33 percent drop in the number of issues). The reason for this is apparently that in order to avoid additional risk the funds are channeling their investments to companies in which they have previously invested, with the goal of helping the firms weather the crisis. The increase in the financing of companies in more advanced stages and the drop in financing of young companies are consistent with the picture that emerges from Box 2.2, according to which there was a relatively limited adverse impact on high-tech companies in Israel this year, while the primary effect was focused on small companies. Furthermore, there was a downward trend in the number of issues in each quarter during the course

Figure 4.6
Distribution of Annual Funds Raised in the Venture Capital Industry



SOURCE: Based on IVC and SNC.

of the year, together with an increase in the amounts raised. This trend points to a recovery in the level of capital raised toward the end of the year but also a decline in the number of companies that are seeking financing. In view of the COVID-19 crisis, the government took special measures in the high-tech industry, particularly the provision of guarantees to domestic investment funds. This measure was focused on companies in relatively late stages of their lifecycle, and therefore did not provide a solution to companies in earlier stages. If the trend in the markets returns to what it was in recent years, it appears that the financing of startup companies in 2020 will not be adversely affected. In contrast, if the financing trends of 2020 continue, the lack of financing during the early stages of the lifecycle is liable to adversely affect the development of startup companies in coming years. At the same time, the increase in the amounts being raised may help startup companies develop and expand their activity. For further details on the financing of high-tech companies and the measures taken by the government this year, see the Bank of Israel *Annual Report* for 2019, which discusses the financing characteristics of high-tech companies in Israel.

1. Regulated credit providers

Other entities that provide nonbank credit include the regulated credit providers, which supply credit primarily to small businesses. (For further details, see the *Financial Stability Report* for the second half of 2020.) In recent years, there has been significant growth in the amount of credit they provide (at an average annual rate of 38 percent during the past four years), and prior to the crisis they provided credit totaling NIS 5.6 billion (which is a negligible proportion of total credit).⁷

Regulated credit providers were hard-hit by the COVID-19 crisis, and the total credit they provided declined sharply (by NIS 1.2 billion or about 28 percent in annual terms). This is apparently due to the difficulty in obtaining financing⁸ as a result of the sharp declines in the raising of capital by the financial industry in general, by way of both the banks and bond issues. Figure 4.7 presents the interest rates according to the various types of lenders on the basis of an analysis of the Central Credit Register, which began operating in 2019 (and includes information on households and licensed businesses). It shows that among the regulated credit providers, in contrast to the banks and the credit card companies, interest rates rose during 2020 (sharply at the beginning of the crisis with some correction subsequently). The combination of a contraction in credit and an increase in interest rates serves as an indication of a contraction in supply, on the condition that the composition of borrowers has not changed since that can affect the interest rate.

Regulated credit providers were adversely affected by the crisis, and they reduced their supply of credit to small businesses and households. In contrast to loans from other credit providers, the interest rate on credit from these lenders increased.

⁷ The data only relate to public companies in the industry that publish financial statements.

⁸ For further details, see the *Financial Stability Report* for the second half of 2020.

An analysis carried out by the Bank of Israel (see the Committee for Examining Competition in the Credit Market) found that a change in the composition of borrowers does not explain the entire change in the interest rate. This finding, together with the increased difficulty in obtaining financing among regulated credit providers, indicates that the supply of credit they provide has been adversely affected.

In December 2020, the Bank of Israel announced that it would carry out repo transactions with the regulated credit providers in order to increase the supply of credit to small and micro businesses through regulated nonbank entities as well. This measure is meant to encourage competition and to strengthen the ability of the regulated credit providers to provide attractive credit to their customers by reducing the cost of their sources of financing. This program offers regulated credit providers a cheap source of credit in order to support small businesses. As part of the repo transactions, the Bank of Israel will accept tradable collateral from them, including government bonds, *makam*⁹, and corporate bonds, according to specific criteria.

3. HOUSEHOLD DEBT

Total household debt (housing and nonhousing) reached NIS 612 billion in 2020, an increase of NIS 24 billion or 4.1 percent, which is slightly lower than in previous years (5.5 percent in 2019 and 5.3 percent in 2018). The household debt to GDP ratio stood at 43.7 percent in 2020 (compared to 41.8 percent in 2019). The trend in the components of household debt varied during and as a result of the crisis. Thus, housing debt continued to grow at a high rate despite the crisis. (For further details, see the *Financial Stability Report* for the second half of 2020). It grew without any increase in interest rates, implying that demand was met by supply and there is no indication of a credit shortage in this segment. In contrast, nonhousing debt fell together with interest rates, and it therefore appears that it was characterized by a drop in demand. Apparently due to the lockdown and the restrictions imposed, there was a contraction in private consumption, together with a lower need for consumer credit. As further evidence of the drop in demand for nonhousing credit, there was an increase in checking account deposits by the public, alongside a decline in overdrafts and a large increase in the rate of private savings (see Chapter 2).

a. Housing debt

Housing debt is primarily owed to the banks (a negligible proportion is obtained from institutional investors). Total housing debt owed to the banks grew by 9 percent in 2020 (an increase of NIS 33 billion), a high rate relative to previous years (7.5 percent in 2019 and 7 percent in 2018). The downward trend in interest rates on mortgages continued at the beginning of the year, but they rose in March–April, and subsequently—as a result of monetary policy measures—they again dropped in most

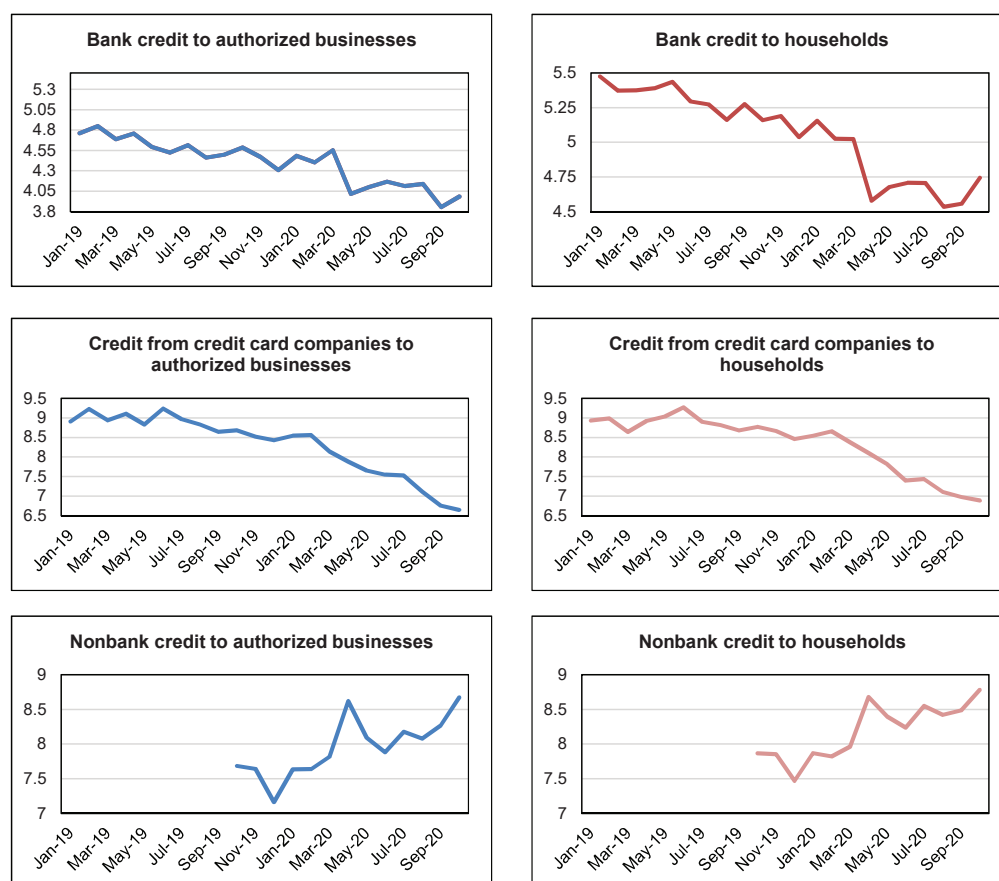
⁹ Short-term bills issued by Bank of Israel.

of the mortgage tracks to precrisis levels. As a result of the low interest rates, the increase in total new mortgages in 2020 was NIS 70 billion (approximately 15 percent higher than in 2019 and 17 percent higher than in 2018; for an analysis of the mix of mortgages, see the *Financial Stability Report* for the second half of 2020).

b. Nonhousing debt

Household consumer debt is obtained primarily from the banks (78 percent), from the institutional investors (10.5 percent), from the credit card companies (7.8 percent), and from regulated credit providers (2.1 percent).¹⁰ An examination of the sources of this debt shows that in 2020 bank debt declined by 5 percent and debt to credit card companies declined by 4 percent, while the debt to institutional investors continued to

Figure 4.7
Interest Rates on Credit to Authorized Businesses and Nonhousing Credit to Households, by Lender



SOURCE: Central Credit Register, Bank of Israel.

¹⁰ The remainder is provided by the government.

grow, although at a low rate relative to previous years (7 percent in 2020 as opposed to an average of 25 percent during the previous three years). An examination of the interest rates shows that the interest rates on bank credit and credit from the credit card companies have been declining since the start of 2019, and the fall in total debt alongside the decline in the interest rates may indicate a drop in demand for consumer debt from the banks and from the credit card companies. Another explanation may be a change in the composition of borrowers, namely the shift of riskier borrowers to other sources of credit. However, an examination carried out by the Bank of Israel found that the change in the composition of borrowers does not explain the entire change in the interest rate. (For further details see the Report of the Committee on Enhancing Competition in the Economy.)

c. The state-guaranteed loan funds¹¹

As part of the steps to cope with the crisis, state-guaranteed loan funds were established. The most active of them, in terms of both number of requests and supply of credit, was the fund for small and medium-sized businesses.

As part of the measures in response to the COVID-19 crisis, the State provided guarantees for loans to the business sector with the goal of increasing the supply of credit to businesses and enabling them to meet their liquidity requirements. The loans were provided by designated funds, through seven banks and three nonbank institutions. Funds were established that were geared toward large businesses; small and medium-sized businesses; and loans to higher-risk small and medium-sized businesses.

The largest of the funds is the **Fund for Small and Medium-Sized Businesses on the regular track**, which carried an aggregate guarantee of 15 percent. The ceiling on the fund was expanded a number of times during 2020, and reached a level of NIS 36 billion. The fund approved 58,314 requests (which constitute about 62 percent of total handled requests) totaling about NIS 20 billion (which constitutes about 31 percent of the total amount requested). It should be noted that while small businesses received a total of NIS 20 billion in credit from the fund, total bank credit grew by only about NIS 1.5 billion. Due to the low interest rates and the easy credit terms that characterize the fund, this finding may indicate that part of the credit was used in order to refinance debt rather than to support business activity. A similar phenomenon was found in an analysis carried out by the ECB.¹²

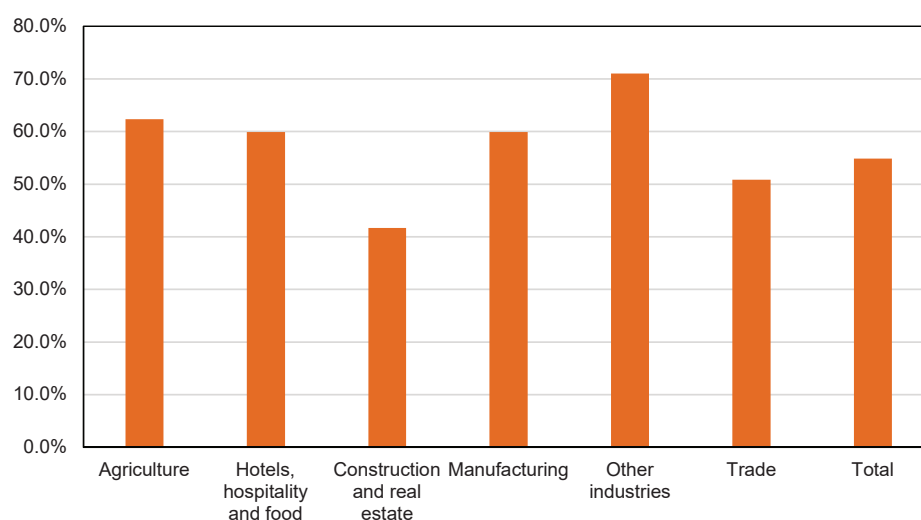
Figure 4.8 shows that the industries most adversely affected by the crisis (trade and hotels) received a higher proportion of the credit that they requested than other industries (construction and real estate). This implies that the assistance was indeed focused on the hardest-hit industries. Figure 4.9 presents the each industry's share of the total credit provided by the fund. The trade industry clearly has the highest proportion (about 30 percent). All of the industries that submitted requests to the fund

¹¹ The data in this section are for the end of 2020.

¹² https://www.ecb.europa.eu/pub/economic-bulletin/focus/2020/html/ecb.ebbox202006_07~5a3b3d1f8f.en.html

(apart from the real estate and construction industry; Figure 4.9)¹³ received credit beyond their share in the distribution of total credit, with a particularly large difference in the trade and hotel industries, which were the most affected by the crisis. This finding may also imply that in these industries the share of credit that was intended to deal the economic downturn rather than to refinance debt was higher than for other industries.

Figure 4.8
Credit Actually Issued as a Share of Requests (percent)



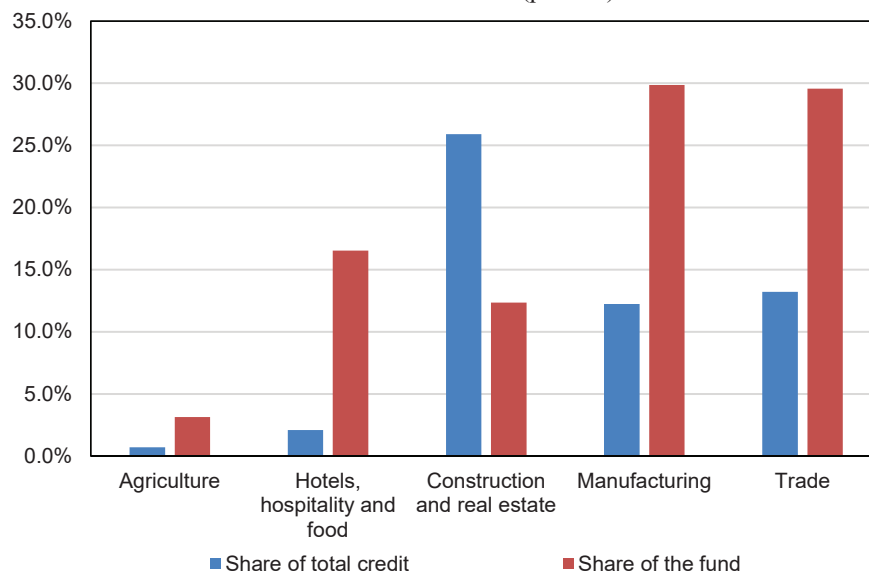
SOURCE: Bank reports to the Banking Supervision Department.

At the end of June, an additional fund was created for **small businesses with high risk levels**. The fund provided a guarantee at the rate of 60 percent, and was intended to assist businesses whose request for credit on the general track was not approved or the credit they received was not sufficient for their needs. The fund approved 3,662 requests (about 81 percent of the total requests submitted to it) with a total amount of about NIS 1.5 billion (about 50 percent of total requests). This fund was characterized by more stringent conditions than the regular track (new businesses and businesses that were significantly affected by the crisis). In a breakdown by industry, the hotel, catering and food industries account for a particularly notable share of the total credit provided by the fund.

¹³ Nonetheless, this industry received significant assistance in the form of loans provided as part of the Bank of Israel program for small and micro businesses—NIS 3.9 billion between December 2020 and February 2021. During this period, which overlaps the beginning of the third lockdown at the end of December and the exit from it during the second week of February, the construction and real estate industry's share of this amount reached 32 percent, which is more than double its share of total credit provided to the business sector.

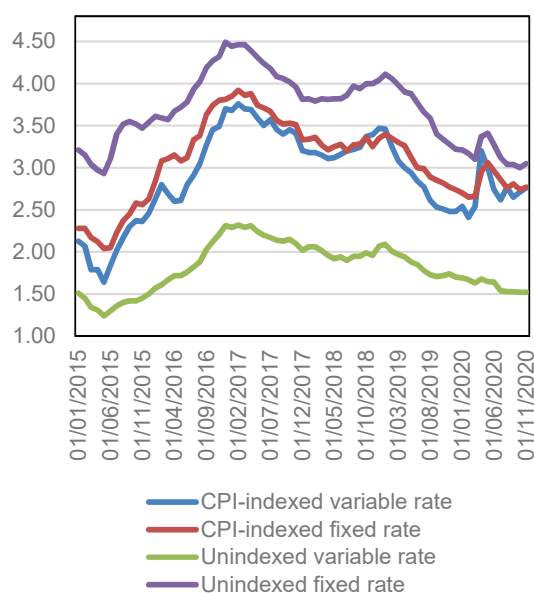
The fund for large businesses was characterized by a relatively small number of credit requests (and relatively low usage), perhaps because large businesses have preferable financing sources.

Figure 4.9
Industry Comparison of Total Business Credit and Credit from the State-Backed Small and Medium Business Fund (percent)



SOURCE: Bank reports to the Banking Supervision Department.

Figure 4.10
Mortgage Interest Rates, Various Tracks
 (percent)



SOURCE: Bank of Israel.

Table 4.2

State-guaranteed funds - summary table

	General track (specific for COVID-19)	Increased track - small and medium businesses	COVID-19 track - large businesses
Annual turnover in NIS million (as a condition for submitting a request to the fund)	Up to 400	Up to 400	Above 200
Additional conditions	Cash-flow difficulty	Significant harm	Cash flow difficulty
Fund total (NIS billion)	36	4	6
State guarantee as a percentage of each loan	85	95-85	75
Maximum guarantee as a percentage of the fund	15	60	12
Number of requests submitted by December 27 (Volume of requests in NIS billion)	99,645 -63.4	4,766 -3.9	73 -3
Number of requests approved by December 27 (Volume of approvals in NIS billion)	58,314 -19.9	3,877 -1.93	39 -1.6
Take-up rate by December 27	55	48	26.6

SOURCE: Banks' reports to the Banking Supervision Department.

Table 4.3
Outstanding household debt

						(NIS billion)	
	Balances					Rates of change	
	2019	5-2020	6-2020	9-2020	12-2020	From the start of the year	Most recent quarter ^a
Total household debt^b	588	594	595	602	612	4.1%	1.6%
By source:							
From banks^c	520	526	528	535	545	4.9%	1.8%
<i>of which</i> : Housing	364	379	380	388	397	9.1%	2.4%
Nonhousing ^d	155	147	148	147	148	-5.0%	0.3%
Current account	12	10	10	9	9	-25.8%	-4.0%
From institutional investors	32.8	33.4	33.0	32.8	33.0	0.7%	0.5%
<i>of which</i> : Housing ^e	14.0	13.7	13.4	13.1	12.9	-7.6%	-1.5%
Nonhousing	18.8	19.7	19.6	19.7	20.1	6.8%	1.8%
From credit card companies^f	23.7	22.9	22.7	22.9	22.9	-3.5%	0.0%
From government (earmarked credit)^g	11.4	11.1	11.0	10.9	10.7	-5.7%	-1.3%
<i>of which</i> : Housing	7.3	7.0	7.0	6.8	6.7	-7.4%	-1.9%
By use:							
Total housing debt	386	400	400	408	417	8.2%	2.2%
Total nonhousing debt	202	194	195	194	195	-3.7%	0.4%

^a Last three months.

^b Excluding credit from nonresidents, due to lack of data.

^c Individuals who are not businesses.

^d Including loans for nonhousing purposes backed by a dwelling.

^e Loans backed by a mortgage. Until August 2013, the figure did not distinguish between mortgage-backed loans to households and those to the business sector. In August 2013, a distinction was made and the data were revised retroactively, which moved some of the balance to business sector debt.

^f Loans that are the responsibility of credit card companies. Loans that are the responsibility of or backed by the banks are included in the data on banks.

^g Loans from the government to borrowers generally pass through the banking system, which serves as a pipeline for the transfer of payments. The main part of this item is loans from the government, but it also includes loans from employers (who are not part of the government or municipal authorities) to employees, which we cannot separate.

Box 4.1

WITHDRAWALS FROM THE VARIOUS SAVINGS PRODUCTS DURING THE CRISIS

- The withdrawal of savings from institutional investors during 2020 was concentrated primarily during the month of March with the onset of the COVID-19 crisis.
- The levels of withdrawal vary according to the savings channel: the larger the tax benefits and the lower the liquidity of the savings type, the lower is the rate of withdrawal. Thus, there were no excess withdrawals from the new pension funds at any time during the period, compared to mutual funds, which experienced a high rate of withdrawal in March across all of the various investment tracks.
- There was a notable shift toward more conservative investment tracks within the provident funds and advanced study funds. In retrospect, this shift resulted, on average, in the loss of revenue for savers.

During the past 20 years, the proportion of the public's asset portfolio managed by the institutional investors has almost doubled.¹ During a period of crisis, withdrawals of savings sometimes increase, due to both a fear of losses and the need for liquidity as a result of increased unemployment. The size and characteristics of the withdrawals during a period of crisis can impact the total savings held by households and the volatility in the financial markets. Therefore, it is important to consider the characteristics of the withdrawals during such periods from the various savings channels—life insurance, the old and new pension funds², provident funds³, advanced study funds, provident investment funds⁴, savings policies, and mutual funds.⁵ In view of their different characteristics (with respect to term, liquidity, and taxation), they may also differ from one another with respect to the characteristics of the withdrawals and perhaps also the withdrawer. We expect there to be differences in withdrawals across the savings channels, and in particular between long-term and short-term savings. It is of interest to analyze the scope of these differences and to determine whether they are observed in the markets during a period of crisis. We will present the differences in trend across the various savings channels as reflected in the withdrawal of funds during the COVID-19 crisis and during the Global Financial Crisis of 2008. We will also present the amounts withdrawn and the investment channels from which they were withdrawn or transferred during the crisis. In addition, we will present—for the first time—information regarding the scope and characteristics of savings in the provident investment funds, a relatively new savings channel in the Israeli market, and the activity of savers in those funds.

¹ From 35 percent at the beginning of the 2000s to 54.2 percent at the beginning of 2020. The rest of the public's assets are held directly by the public, primarily in the form of bank deposits, although they also include direct holdings of securities.

² We do not discuss the general new pension funds, but only the comprehensive funds in which most of the assets are managed.

³ In this box, the data include the following savings channels: employer and personal contributions for severance, centralized contributions for severance, and funds for other purposes.

⁴ In this box, the data include the "Savings for Every Child" provident investment funds, all of which are categorized as having the general track.

⁵ The analysis and the data for the mutual funds also include index funds, which passively track indices.

a. Background—the products

The public can invest in the capital market either directly or by way of intermediaries, i.e., the institutional investors. The choice to invest by way of the institutional investors involves handing over the management of a portfolio to a financial institution.⁶ The institutional investors manage a number of investment vehicles, which differ from one another with respect to tax benefits and liquidity levels, among other things, which can be expected to influence the term of the investment.

It is generally the practice to divide private savings into three layers: the first is savings by way of National Insurance, which provides an old-age pension (mandatory savings according to law)⁷; the second is employment-based savings by means of pension savings products (mandatory savings according to law)⁸; and the third is personal savings in addition to the previous two layers, in which the household chooses how much to save. While most savings vehicles that are managed by the insurers and the provident fund management companies (life insurance, pension funds, and provident funds) are part of the second layer, there are also managed products within the third layer (i.e., advanced study funds and provident investment funds). In contrast, mutual funds are managed only as part of the third layer, and do not provide any retirement tax benefits. Table 1 describes the various products according to their characteristics.

Period of investment	Name of the product	Tax benefits on withdrawal	Other benefits	Tax benefits when transferring between investment tracks (mobility)	Proportion of funds that can be withdrawn with no fine¹ and the number of days from the order to withdraw until the receipt of funds
Short-term investment / private savings	Mutual funds	None	None	There is no benefit. ²	No fine on any part of the funds. Delivery within one business day.
	Investment provident fund (exists since November 2016)	Exemption of capital gain tax when funds are withdrawn as an annuity after the age of 60.	None	Yes	No fine on any part of the funds. Delivery within 4 business days.
	Savings policies	None	None	Yes	No fine on any part of the funds. Delivery within 30 days.

⁶ Apart from a negligible proportion of investors who manage their own provident funds and advanced study funds (IRA funds).

⁷ The National Insurance Law [Combined Version], 5728–1968.

⁸ Expanded Directive [Combined Version] for Mandatory Pensions According to the Collective Bargaining Law, 5717–1957.

Table 1					
Period of investment	Name of the product	Tax benefits on withdrawal	Other benefits	Tax benefits when transferring between investment tracks (mobility)	Proportion of funds that can be withdrawn with no fine ¹ and the number of days from the order to withdraw until the receipt of funds
	Advanced study funds	Exemption from capital gains tax on savings held for more than 6 years.	Savings by employees are usually financed in part by the employer. Income tax benefit for deposits.	Yes	75 percent of the money in the overall funds have been held for over 6 years and hence do not have a tax penalty. ³ Delivery within 4 business days.
	Provident funds	Exemption from capital gains tax. Fine of 35 percent for withdrawal prior to retirement age for funds deposited since 2008.	Income tax benefits.	Yes.	No fine on 80 percent of the funds. ⁴ Delivery within 4 business days.
Long-term investment	New pension funds	Exemption from capital gains tax. Fine of 35 percent if funds are withdrawn before an insurance event or retirement.	Income tax benefits. 30 percent of the assets are invested in designated government bonds, which provide an above-market return.	Yes	Funds cannot be withdrawn without a fine. Delivery within 4 days.
Long-term investment	Pension insurance policy (managers insurance)	Exemption from capital gains tax. Fine of 35 percent for withdrawal before an insurance event or retirement.	Income tax benefits. There are also old policies that are closed to new members.	Yes. In some of the policies, there is no possibility of switching between investment tracks.	The funds cannot be withdrawn without a fine. Delivery within 7 days of the end of the insurance (retirement age) or 30 days if prior to that.
	Old pension fund	Exemption from payment of capital gains tax. Loss of rights ⁵ in the case of withdrawal prior to an insurance event or retirement.	Income tax benefits. 30 percent of the total assets are invested in designated government bonds. This is an old product that is not open to new members.	Not relevant.	The funds cannot be withdrawn without a fine. Most of the savers are older.

¹ Does not include withdrawals in cases of dire need, namely situations that permit early withdrawal of pension savings due to financial or health distress.

² It is not possible to transfer funds between tracks. Theoretically, funds can be withdrawn and reinvested with a financial institution or in a different mutual fund.

³ During the COVID-19 crisis, exemptions were provided for limited withdrawals from advanced study funds, such that it was possible to withdraw a limited amount even if six years had not passed since the opening of the fund.

⁴ Primarily with respect to savings deposited since 2008. Savings prior to that can be withdrawn without a fine after 15 years.

⁵ The calculation of rights in the old pension funds varies from one fund to another, as does the fine.

SOURCE: Based on the laws governing the various savings products.

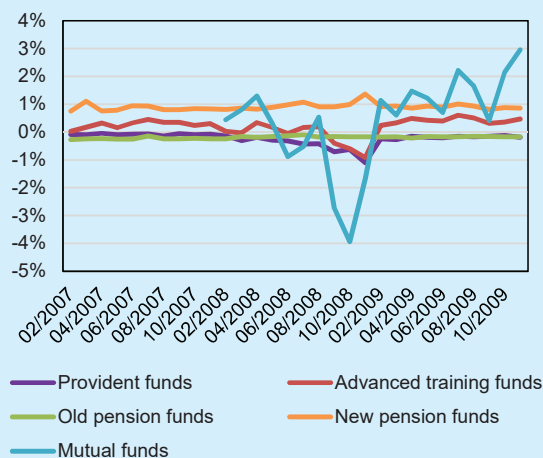
b. The conduct of those who manage their savings through institutional investors during periods of crisis

In order to characterize the behavior of savers during a period of crisis, we will examine two elements: (1) withdrawing cash from an investment vehicle and depositing it in a bank account; and (2) mobility – a transfer between investment tracks within the same investment vehicle.

1. Withdrawal

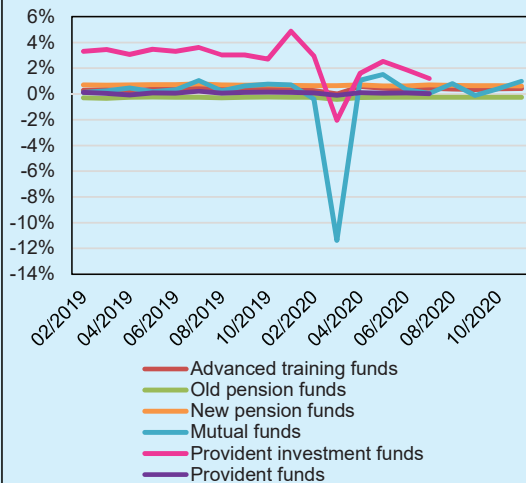
Figures 1 and 2 present the net new investment (total amount deposited less total amount withdrawn) for each product during the Global Financial Crisis (Figure 1) and during the COVID-19 crisis (Figure 2), according to the various savings products offered by the institutional investors.⁹ The graphs show the difference in behavior between savers in the two cases. The excess withdrawals in 2020 were concentrated in the month of March. This fact points to the disconnect between the financial markets—in which the crisis ended early in the year—and the real markets, in which the crisis was more prolonged.

Figure 1
Net New Investments in the Various Institutional Channels as a Share of Total Assets at the Start of the Relevant Month, 2007–2009*



* Except for December and January of each year, during which there is a periodic increase in new investments.
SOURCE: Based on mutual fund reports to the Capital Market Authority and Tel Aviv Stock Exchange data.

Figure 2
Net New Investments in the Various Institutional Channels as a Share of Total Assets at the Start of the Relevant Month, 2019–2020*



* Except for December and January of each year, during which there is a periodic increase in new investments.
SOURCE: Based on mutual fund reports to the Capital Market Authority and Tel Aviv Stock Exchange data.

⁹ As a result of accounting standards, there are no data available on withdrawals from managers' insurance policies. In the future, with the adoption of IFRS17, it will be possible to identify withdrawals from savings products managed by the insurance companies. It is reasonable to assume that savers in these products behave similarly to those in parallel products offered by the institutional investors.

Even though the lockdown led to an increase in unemployment and unpaid leave (situations in which pension contributions are not mandatory), the COVID-19 crisis did not lead to any major change in the rate of net new investment in the new pension funds relative to precrisis levels (Figure 2), which is similar to the pattern observed for the pension funds in 2008. This is particularly surprising in view of the fact that one-third of the labor force was furloughed during that month. In order to explain this phenomenon, we examined deposits and withdrawals from the pension funds separately relative to the trend in recent years. We found that starting in the month of April there was a decline in the rate of deposits relative to the same months in the previous year¹⁰. From 2017 until March 2020, there was an average increase of about 11 percent in deposits relative to the corresponding month in the previous year, while between April and December 2020 the average increase was only about 3.5 percent. The largest decreases relative to the trend occurred from April to June¹¹ and in November, such that the decline in deposits appears in the following month, both lockdowns. It should be noted that the rate of decline in deposits relative to the trend is significantly less than the increase in the rate of unemployment during these months. Nonetheless, during the months of the crisis the rate of withdrawals from the new pension funds was similar to, or even lower than, the trend. This finding is surprising but nonetheless consistent with the literature: The effect of default options and inertia is reflected in the low number of withdrawals, even during periods of crisis.¹² In the old funds, which have been in a run-off period (no new members and an aging population of existing members) in recent years, there is a constant flow of withdrawals totaling about NIS 1.5 billion¹³ per month, although in March the amount spiked to NIS 2.3 billion, which was the second highest level during the past decade. During the remaining nine months of the year, withdrawals were similar to the average for recent years. This indicates that the March withdrawals were anomalous—and may come with a significant economic cost (Table 1)—rather than due to the early retirement of savers. However, in view of the large amount of assets in the old funds, the March withdrawals represent a negligible proportion of total assets (about 0.5 percent as opposed to 0.35 percent in an average month).

In contrast, there were relatively high rates of withdrawal from mutual funds during both crises. Although this finding is not unexpected in view of the short-term nature of the savings instrument and the lack of incentives to leave the savings untouched (apart from the deferral of tax payments), the rate of withdrawal during the current crisis was three times the rate during the Global Financial Crisis, and the correction in April 2020 was less intense than the one during the months subsequent to the 2008 crisis. The rates of net new investment in advanced study funds (0 percent) and the provident funds (-0.21 percent) are between the rates in long-term and short-term savings. Net new investment in these products is usually positive and most of the funds are liquid. However, their withdrawal involves a loss of tax benefits and the money is not immediately liquid. The rates of withdrawal from these savings products during the COVID-19 crisis were lower than during the previous crisis. In particular, the rates of

¹⁰ A similar examination of the other products discussed in this box did not lead to similar findings. In particular, there was no drop in deposits or increase in withdrawals relative to the trend in the months of April-June.

¹¹ In April, there was also a sharp decline in the rate of withdrawals, such that the rate of net new investment dropped relative to the trend only during the months of May-June.

¹² Such as: Blanchett, Finke, and Reuter (2020); Chetty, Friedman, Leth-Petersen, Nielsen, and Olsen (2014).

¹³ On average during the last three years.

withdrawal from the advanced study funds were not particularly high after August 2020, even though, due to the crisis, exemptions were provided during that month for the withdrawal of funds before maturity.¹⁴

Net new investment in the provident investment funds was markedly lower than that in the medium- and long-term savings products, but higher than in mutual funds. It therefore appears that the tax incentives attached to them (relative to mutual funds)—primarily the tax exemption for long-term savers and perhaps also the delay in liquidity—are what led savers to avoid withdrawing their savings in this case. It should be noted that total assets under management in this product are still relatively low (approximately NIS 15 billion).

Against the background of the negative net new investment in the institutional investors, the levels of cash and bank deposits grew significantly, an indication that most of the money withdrawn from the institutional investors was not reinvested in the short term.

2. Investment tracks

Although the savers in institutional investors do not directly choose their investments, they can select the investment track. In the case of the long- and medium-term investment products, and also in the case of the provident investment funds, savers can choose between general tracks (in which the mix of investments is chosen by the financial institution) and tracks that specialize in a particular type of asset, namely equities, bonds, or low-risk, unindexed shekel-denominated instruments.¹⁵ The mutual funds examined here do not include any funds defined as general, but rather include only specialized ones. An examination of the distribution of savings by investment tracks available in each investment vehicle can provide additional insight into the characteristics of the savings and of the savers. In the examination of this aspect of the new pension funds, we will focus on the provident and provident investment funds, the advanced study funds, and the mutual funds.¹⁶

In the new pension funds, the provident funds, and the advanced study funds, most of the savings is invested in the general tracks (Figure 3).¹⁷ In the provident investment funds, the proportion of assets invested in the equity tracks is significantly greater than in the provident funds and the advanced study funds, and it is closer to the proportion observed in the mutual funds. This on its own is an indication of the unique characteristics of the provident investment funds and of the savers in this vehicle, who may be more active in the investment selection process or less risk-averse.

¹⁴ For the sake of comparison, the exemptions on the withdrawal of pension funds in the US led to a dramatic increase in withdrawals during the COVID-19 crisis.

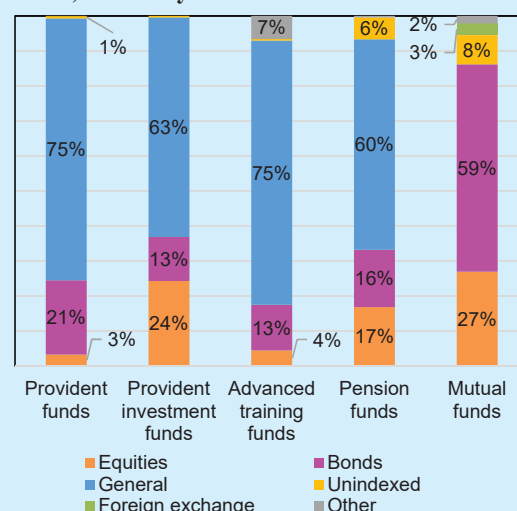
¹⁵ Within the general track, we have included the following tracks: pensioners, graduated, abroad, Israel, *halachic* and cohorts (“the smart model”). The bond and equity tracks also include tracks that specialize only in Israel or only abroad. The funds that specialize in index tracking were defined as share funds. The data on the guaranteed-return funds was excluded. The “other” category includes the following tracks: other, foreign residents, uncategorized, and flexible. The funds were categorized into the various tracks according to the Capital Market Authority classification, while the mixed funds (such as 80/20) were categorized according to the majority of their assets.

¹⁶ Here again the data are for the insurance companies. However, in the case of the new policies, as in the case of the new pension funds, most of the savings are invested in general tracks.

¹⁷ We do not have more detailed information on the investment tracks in 2008, but there are indications that during the entire period most of the funds were invested in the general tracks.

Figure 4 presents the net new investment (positive or negative) in the various investment tracks for each product separately, as a percentage of the total flow in absolute terms in that track. The net new investment in absolute terms in all of the tracks and in all of the products adds up to 100 percent. The Figure shows that there was positive net new investment in all tracks in the new pension funds. Thus, there were no large-scale withdrawals from this product, and apparently no significant transfers between the investment tracks.¹⁸ In contrast, in the provident funds and the advanced study funds, the accumulation in the low-risk, unindexed, shekel-denominated funds¹⁹ and the bond funds (which are considered to be more conservative) was positive and almost the mirror image of the negative accumulation in the general tracks and the share tracks. It appears that savers in the provident funds and advanced study funds refrained from withdrawing their money in order to avoid losing the tax benefits, and chose to reduce their risk by shifting to more conservative tracks. A shift to more conservative tracks during a crisis is not unique to the COVID-19 crisis, and a similar phenomenon—though on a broader scale—was observed during the Global Financial Crisis in the mutual funds, the provident funds, and the advanced study funds. Savers are liable to pay a heavy price for such a move, since it has been reported in the literature that shifts to more conservative tracks during a crisis usually result in financial losses.²⁰ A saver in a provident fund, provident investment fund, or advanced study fund who shifted his money in March 2020 from an equity track to a low-risk unindexed shekel denominated track lost an average of about 19.5 percent in returns over six months.²¹

Figure 3
Distribution of Assets Among Specializations, by Savings Product Prior to the COVID-19 Crisis, February 2020



Calculation method: Total assets in each of the specializations, divided by total assets in the track.

SOURCE: GemelNet, PensiaNet, and mutual fund reports to the Capital Market Authority.

¹⁸ A similar examination for April and May shows that despite the drop in deposits during those months relative to the trend, the distribution of net new investment between the tracks remained unchanged.

¹⁹ These data are particularly noteworthy in view of the low proportion of the shekel funds within these products prior to the crisis. Assets in the shekel provident funds totaled NIS 1.77 billion at the end of February, and a total of NIS 1.9 billion was invested in them in March alone (Figure 2).

²⁰ It was found that in the past the shift from “risky” tracks to “conservative” tracks reduced yields: Ben-Rephael, Kandel, and Wohl (2012); Bucher-Koenen and Ziegelmeyer (2014).

²¹ Calculated as a simple average of yields on the share tracks of each product, less a simple average of yields on their shekel tracks (taken from the Gemelnet site). The yields were calculated from the beginning of 2019 to September 2020, less the yield on that fund from the beginning of 2019 until March 2020. The funds for which data were missing were excluded from the calculation of the average.

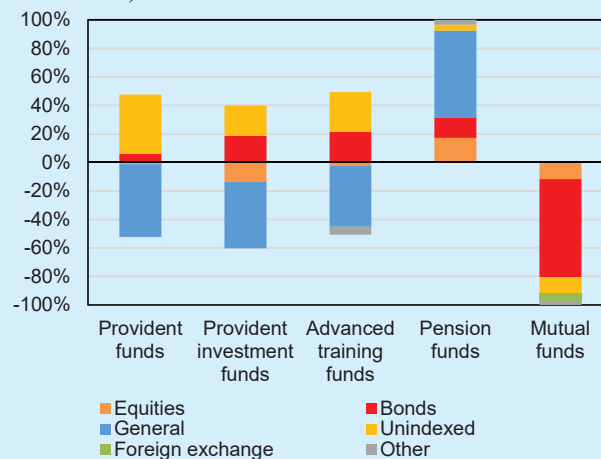
In contrast, there was negative net new investment (withdrawals/redemptions) in the mutual funds in all the tracks (Figure 4), including a high rate of withdrawal (15 percent) from the assets in the low-risk unindexed shekel denominated track, which is in contrast to the behavior of savers during the Global Financial Crisis when there was positive net new investment (of about 15 percent) in that track in mutual funds as well. In fact, the withdrawals from the equity tracks during the current crisis were less than those from the other specialization tracks. There are two possible explanations for this behavior. The first is that investors in mutual funds are more sensitive to price changes, which are published daily and even intraday as part of the publication of the fund's yield, in contrast to the rest of the investment vehicles offered by the institutional investors, for which short-term yields are not published as frequently. The literature reports that when yields are

published less frequently, there is less withdrawal and less transferring between investment tracks, so the phenomenon is not observed in the case of the other savings products.²² During the COVID-19 crisis, shekel-denominated asset prices fell sharply, particularly the prices of government bonds during the month of March (see the *Financial Stability Report* for the second half of 2020 and the description in the body of this chapter).

There were also withdrawals from the equity and bond tracks, which experienced a shock in the markets, although the shock in the shekel markets was more dramatic and more of an outlier, thus apparently creating a more pronounced effect on withdrawals from these tracks. For the rest of the institutional investors, the lack of access to short-term yields may have prevented withdrawals from the shekel and conservative tracks. Another possible explanation is that savers in mutual funds expected a need for liquidity and preferred to withdraw funds from conservative tracks and only later from riskier tracks, which were more adversely affected by the crisis but were expected to recover in the medium term. It may also be that these investors are less risk-averse as indicated by the diversification of investments among the various investment tracks even before the crisis.

With respect to the provident investment funds, and despite their similarity to the mutual funds in the distribution of assets between the investment tracks, the shifts between tracks during the COVID-19

Figure 4
Net New Investments by Track in Each of the Investment Products as a Share of New Investments that Month, March 2020



Calculation method: Net new investments from the start of 2019 until March 2020, minus net new investments from the start of 2019 until February 2020, by specialization and by product. Each product's share is the net new investment in that product in March, minus the sum of the absolute values of net new investments in all specializations in that product.

SOURCE: GemeiNet, PensiaNet, and mutual fund reports to the Capital Market Authority.

²² Shaton (2017), and Porat and Steinberg (2011).

crisis are similar to those in the provident funds and the advanced study funds, and are characterized by a shift toward the conservative tracks (Figure 4).

c. Conclusion and Discussion

During the COVID-19 crisis, as in the Global Financial Crisis, the excess withdrawals by savers from the institutional investors in Israel were in line with the shocks to the markets. They were clustered in the month of March, and following that—as the markets recovered—there were no excess withdrawals observed, despite the continuing crisis in the real economy. Nonetheless, an examination of the population groups that were most affected by the crisis in the real economy and those that hold their savings with the institutional investors indicates that the characteristics of the withdrawals are consistent with the nature of the current crisis. A long-term survey carried out by the Central Bureau of Statistics in 2018 shows—as do surveys from previous years—that most of the assets in all of the savings vehicles belong to the two highest income quintiles in Israel, while the current crisis has primarily affected low-income earners (see Chapters 5 and 8 in this report). Furthermore, the holdings of the highest quintiles increase with the product's liquidity. Thus, they hold 70 percent of the advanced study funds and close to 80 percent of the mutual funds. It appears that the increase in unemployment and in the number of furloughed workers did indeed reduce deposits relative to the upward trend of recent years, but not only was there no increase in withdrawals from the pension funds, there was even a decline, such that the over-all effect on investments was not substantial. There was a one-off increase in withdrawals from the old pension funds in March, which apparently was not the result of an increase in early retirement.

The reasons for the differences in levels of withdrawal and of switches between investment tracks in the institutional investors are, in our view, related to the characteristics of the vehicles (primarily in terms of tax benefits and long-term savings incentives) and to the accessibility of information for savers (the frequency with which information is published), as well as perhaps the characteristics of the savers (i.e., a relatively large presence of active, less risk-averse investors in the mutual funds). These findings emphasize the importance of understanding the characteristics of the savings vehicles, the applicable regulations, and the level of transparency—factors that are known to have a major influence on savers' behavior.

Provident investment funds are a new hybrid vehicle, in which the rate of withdrawal was low relative to mutual funds, although there was a high rate of switching to conservative tracks, which is similar to what was observed in the provident funds.

In general, moving between the specialized tracks within the various savings vehicles led to significant losses for savers. The low rate of withdrawal in some of the vehicles and the high rates of mobility between the tracks within them is becoming even more relevant to the stability of the markets and to the future yields of savers, as investment through the institutional investors increases. This is particularly the case with respect to the provident investment funds, which, despite their small share of total savings, are expected to grow in the coming years and to capture a broader market share.

Withdrawing funds during a shock to the markets apparently leads to losses for savers. The timing and nature of the tracks from which there were withdrawals or transfers imply that they were due to not only the need for liquidity but also the fear created by the shocks to the markets.

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Box 4.2

ESTIMATING THE NUMBER OF BUSINESSES WHOSE RISK OF CLOSURE INCREASED SIGNIFICANTLY DURING THE COVID-19 CRISIS

- According to the Israel Tax Authority, about 9,000 businesses closed during the first half of the year, which is 33 percent less than during the same period last year.
- The official figure for the closure of businesses during the COVID-19 crisis is apparently an underestimate, since many business owners who wanted to avoid the costs of operating their businesses while at the same time maintaining their eligibility for State assistance to businesses suspended their operations without closing their files at the Israel Tax Authority.
- The estimated number of businesses that didn't close officially, though it appears that their situation has deteriorated to the point that their risk of closure has increased significantly, is based on revenue data for July–August, during which the restrictions on movement in most industries were relatively limited. About 70,000 businesses—most of them in the trade and services industries—experienced a decline of 80 percent or more in revenue during July–August 2020 relative to the corresponding period in 2019.
- About 60 percent of the businesses that experienced a drop of 80 percent or more in their revenue during July–August are classified as micro businesses, with annual revenue of up to NIS 300,000. The aggregate revenue of these businesses is estimated at about NIS 5 billion, and their share of aggregate business revenue is estimated at only about 0.25 percent. It can also be assumed that a high proportion of these micro businesses are self-employed individuals without any employees. Thus, notwithstanding the need to ameliorate the harm to businesses whose activity has contracted, the effect of the closure of these businesses on GDP, the credit risk to the financial system, and the labor market is limited.

The COVID-19 pandemic and the restrictions on movement in order to mitigate its spread had an adverse effect on economic activity. This is manifested in, among other things, the increased number of businesses that are experiencing a major downturn in their activity and whose risk of closure has increased. The realization of this risk and the closure of these businesses is liable to be reflected in real economic variables, such as GDP and the labor market variables, and to bring about an increase in credit losses among capital providers. Estimating the number of businesses that have experienced a major downturn in their activity as a result of the crisis and understanding their composition can provide insight into the extent to which the economy would be affected if the risk of closure is realized and these businesses are closed.

a. Defining the closure of a business

Officially, a business is considered to be closed when it closes its file with the Israel Tax Authority. Accordingly, in the first section of the box we will describe the average annual number of businesses that were officially closed prior to the onset of the COVID-19 crisis. This figure reflects the number

of business closures in Israel during normal periods and can serve as a benchmark for the subsequent discussion of the number of businesses officially closed during the COVID-19 period.

The estimated number of business closures during the COVID-19 crisis, based on the data for official closures, is liable to be an underestimate of the number of businesses that actually terminated their economic activity. This is because there are businesses that are delaying the closure of their file at the Israel Tax Authority in order to continue being eligible for grants from the State as part of the safety net for businesses. In order to estimate the number of businesses that terminated their economic activity even if they did not officially close, we will examine the number of businesses that experienced a contraction in their income of more than 80 percent during the COVID-19 crisis relative to their income during the same period in the previous year. In contrast to official closures, a sharp drop in a business's revenue may be indicative of only a temporary halt in activity and not necessarily permanent closure. Nonetheless, it may be said that a major contraction in revenue reflects at least a significant deterioration in the state of a business during the COVID-19 pandemic and an increase in the probability of its closure.¹ In the last part of the box, we will make a more stringent assumption that all of the businesses that experienced a major downturn will indeed close, and we will estimate the effect on the economy.²

b. The closure of businesses prior to the COVID-19 crisis – the official figures

The average annual number of businesses opened stood at 56,000 prior to the COVID-19 crisis, while the number that closed was 43,000. The variation across industries is particularly notable: While the food and communications industries are characterized by high turnover rates (a relatively high number of openings and closures each year), the turnover rates in finance and manufacturing are low (Figure 1). The variance in the turnover rates reflects variance in the level of business risk between industries. Figure 2 presents the three riskiest industries and the average of all industries. The Figure shows that 54 percent of the businesses that were opened in 2014 didn't survive for five years. The businesses in the hospitality and food, information and communications, and trade industries, which have the highest turnover rates, also have the lowest ability to survive. For example, 65 percent of the businesses in the hospitality and food industry that were opened in 2014 were closed by 2019.

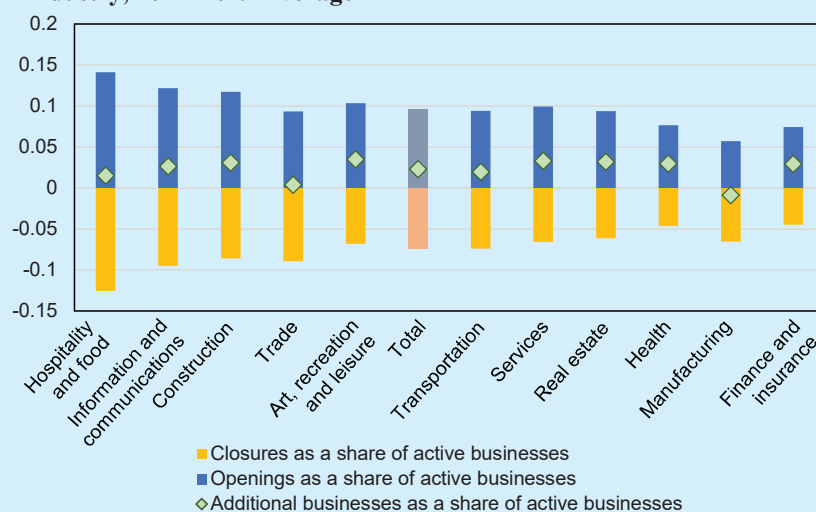
c. The number of businesses closed during the COVID-19 crisis – the official figures

Overall, the current crisis might have been expected to bring about an increase in the number of official business closures beyond its level in a normal period. However, according to official Israel Tax Authority

¹ It should be noted that the risk of a business closure is also liable to increase after a decline of less than 80 percent in revenue. In this box, we focus on the group of businesses whose risk of closure increased significantly, and the analysis therefore focuses on the group of businesses that experienced a drop of 80 percent or more in their revenue.

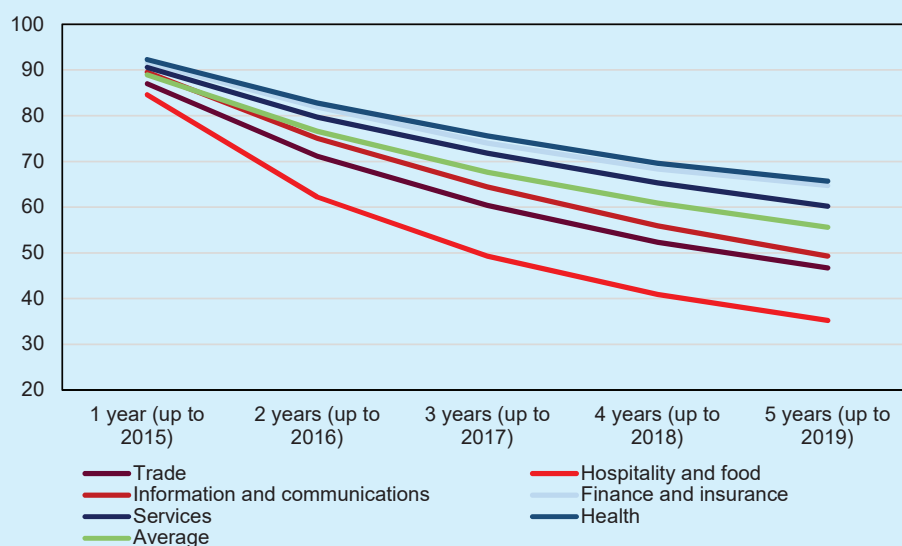
² The analysis will be based mainly on three reports published by the Israel Tax Authority for the months March–April and July–August 2020, which were used to analyze the VAT reporting of licensed businesses, with the goal of estimating the effect of the COVID-19 crisis on business revenue across industries and according to business size. The analysis in the reports is based on a very high proportion of total businesses, and we will therefore assume that the calculated estimates are indicative of the entire population of businesses in Israel. Thus, the report for July–August, which will be the focus of the analysis, is based on 447,459 businesses, which constitute 73 percent of all businesses in Israel and 82 percent of all active businesses (i.e. those that had positive revenue in 2019).

Figure 1
Business Openings and Closures as a Share of Active Businesses in the Industry, 2017–2019 Average



SOURCE: Based on Central Bureau of Statistics, "The Demography of Businesses - Survival and Movement of Businesses, 2017–2019".

Figure 2
Five-Year Survival of Businesses Started in 2014, by Industry (percent)



SOURCE: Based on Central Bureau of Statistics, "The Demography of Businesses - Survival and Movement of Businesses, 2017–2019".

reports, during the first six months of 2020 only 9,384 businesses were closed—33 percent less than during the corresponding period in 2019. At the same time, 17,928 new businesses were opened, which is 15 percent less than during the same period in 2019. The net addition of businesses to the economy during the first half of 2020 was therefore positive: 8,544 businesses as opposed to 6,964 businesses during the corresponding period in 2019.

The finding of a sharp decline in the number of business closures during the crisis is counterintuitive. A possible explanation of this finding is that business owners who want to avoid the payment of fixed and variable costs related to the operation of their business, while at the same time maintaining their eligibility for assistance provided by the State in the form of a safety net for businesses, suspended their economic operations without officially closing their files at the Israel Tax Authority. Thus, the official figure for the number of business closures does not fully reflect the number of businesses whose economic activity was actually terminated. The next section of the box uses the figures for the drop in business revenue to estimate the number of businesses whose situation significantly deteriorated during the COVID-19 crisis (although they did not close officially), such that their risk of closure increased substantially.

d. Estimating the number of businesses whose situation deteriorated significantly and whose risk of closure increased during the COVID-19 crisis

According to Israel Tax Authority data, a significant proportion of businesses suffered declines in revenue during 2020 relative to the corresponding period in 2019. It is plausible that the businesses with the largest declines in revenue experienced the most severe deterioration in their situation, and their risk of closure grew. The Israel Tax Authority reports do not present the data on declines in business revenue in a continuous form but rather in segments. The segment with the greatest decline in revenue relates to a reduction of 80 percent or more. On the assumption that a drop of 80 percent or more reflects a significant deterioration in the business's situation, the number of businesses included in the aforementioned segment can serve as an indicator of the number of businesses whose risk of closure has increased.³

The goal of the analysis is to identify the businesses whose revenue declined as a result of an ongoing deterioration in their situation and that are not expected to recover even after the restrictions on movement that were imposed during the COVID-19 pandemic are removed, and to differentiate them from businesses whose revenue fell due to a temporary slowdown in their activity as a result of the restrictions on movement. The drop in revenue during March–April and May–June may reflect a temporary deterioration in the businesses' activity as a result of the restrictions on movement imposed due to the pandemic, and may not necessarily be indicative of a permanent deterioration in their activity. However, a drop in revenue in July–August, when the restrictions imposed on movement in most industries were negligible⁴, likely indicates that the businesses found it difficult to recover from the restrictions, that their situation had deteriorated, and that the risk of their closure had increased.

³ It should be noted that the extent to which the risk of a business closing increases after a given decline in its revenue is derived from its unique financial and operational characteristics, including the structure of its costs and particularly its fixed costs as a share of expenditure, its leverage ratio, and its liquidity ratio.

⁴ It should be noted that the results of the analysis remain essentially unchanged after omitting industries whose activity was limited during a significant portion of July–August, such as the art and entertainment industry.

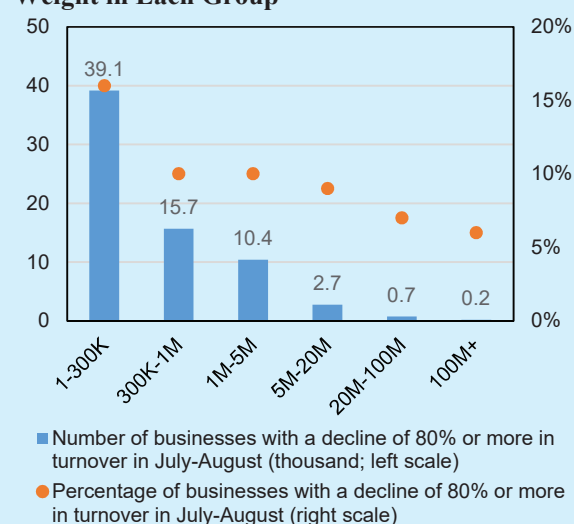
According to the data, 68,766 businesses, or 12 percent of the total⁵, recorded a drop in revenue of 80 percent or more relative to the corresponding period in the previous year, and even though they did not close officially their probability of closure apparently increased significantly.⁶

e. The economic effect of the business closures⁷

The question that naturally arises from the foregoing analysis is to what extent an increase in the risk of business closure adversely affects various economic variables, such as GDP, unemployment, and credit losses recorded by capital providers. In the analysis that follows, we assume that all of the businesses that had a decline of 80 percent or more in their revenue during July–August will indeed close, and we will propose an estimate for the effect of such closure on various economic variables.

Figure 3 presents the number of businesses and the share of the total that recorded a drop in revenue of 80 percent or more in July–August according to the size of the business. It shows that a significant proportion of these businesses are small or micro businesses. More specifically, 57 percent are micro businesses with annual revenue of up to NIS 300,000, while 80 percent are small businesses with revenue of up to NIS 1 million. The estimated aggregate revenue of the small and micro businesses that were closed in 2019⁸ is relatively modest (NIS 8 billion and NIS 5 billion,

Figure 3
Businesses that Recorded a Decline in Turnover of at Least 80 Percent in July–August, by Turnover Size Group, and Their Weight in Each Group



SOURCE: Based on Israel Tax Authority Reports.

⁵ The calculation of the absolute number of businesses is based on the population of businesses in Israel less 86,170 businesses whose revenue in July–August 2019 was zero. We assume that the latter discontinued operations prior to the onset of the COVID-19 pandemic.

⁶ It should be noted that alongside the slowdown in activity among some of the businesses, growth was recorded in the activity of other businesses. Thus, according to Israel Tax Authority data, 42 percent of businesses recorded growth in their revenue during July–August. About 34 percent of the businesses even recorded a significant level of growth (more than 10 percent).

⁷ Data constraints make it difficult to carry out the various segmentations needed to evaluate the effect of the termination of activity in the 9,384 businesses that were formally closed during the first half of 2020. We will therefore focus in this section of the box only on the 68,766 businesses that were not officially closed in July–August, but rather reported a drop of 80 percent or more in their revenue during this period.

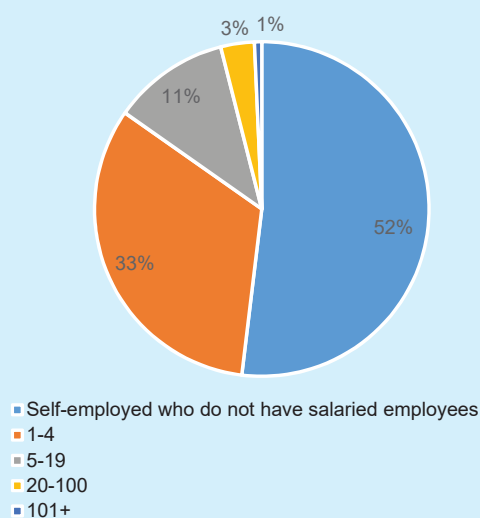
⁸ The estimate was constructed as the product of the number of businesses that reported a drop of at least 80 percent in their revenue in July–August and the median revenue of businesses in each group by business size. The median revenue in 2019 was estimated on the basis of data for May–August 2019, which appear in the Israel Tax Authority reports.

respectively). Meanwhile aggregate business revenue in the economy is about NIS 2 trillion. On the assumption that the revenue of a business is the upper bound of its value added, it can be concluded—based on the low aggregate revenue of small and micro businesses that experienced a significant slowdown in their activity—that the effect of their closure on total business output would not be substantial.⁹

On the assumption that the total credit provided to a business is correlated with its revenue, it can be assumed that the effect of the closure of small and micro businesses on credit losses in the financial system would also not be substantial.¹⁰

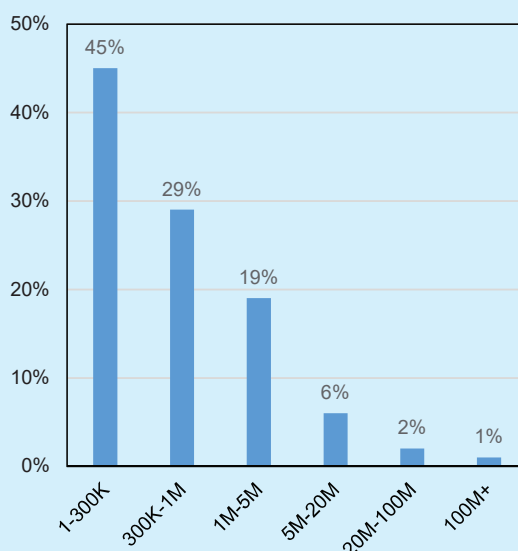
In the next stage, we will attempt to estimate the effect of the closure of businesses whose revenue dropped by 80 percent or more on the labor market. Figure 4 presents the breakdown of businesses in Israel according to number of employees, while Figure 5 presents their breakdown according to size (in terms of revenue). Figure 4 indicates that 52 percent of the businesses in Israel are self-employed individuals without any employees. Figure 5 indicates that 45 percent of the businesses in Israel are micro businesses with revenue of less than NIS 300,000. It can be assumed that there is a significant

Figure 4
Distribution of Businesses by Number of Salaried Employees, 2019



SOURCE: Based on Central Bureau of Statistics, "The Demography of Businesses - Survival and Movement of Businesses, 2017–2019".

Figure 5
Distribution of Businesses by Turnover Size Group, 2019



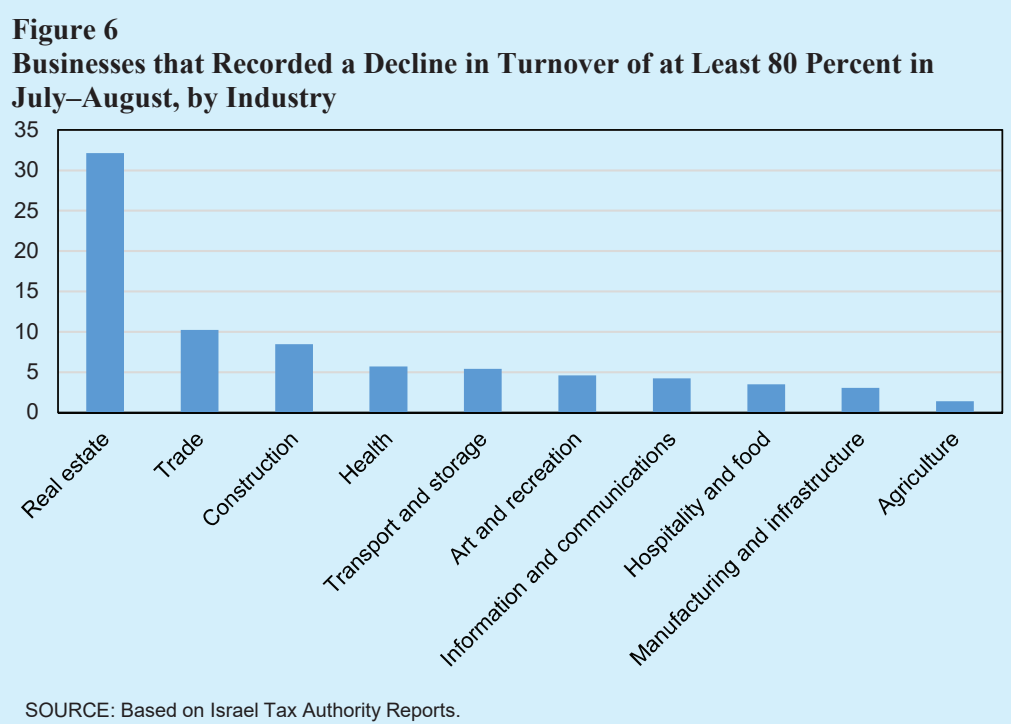
SOURCE: Based on Israel Tax Authority Reports.

⁹ Due to data constraints, it was not possible to directly calculate the aggregate added value of businesses whose risk of closure had increased.

¹⁰ It should be noted that not every closure of a business is expected to result in credit losses for the capital providers. This partly depends on the reason for the closure: Closure due to financial or operational difficulties as opposed to voluntary closure; the business's financial profile; the quality of the collateral; etc.

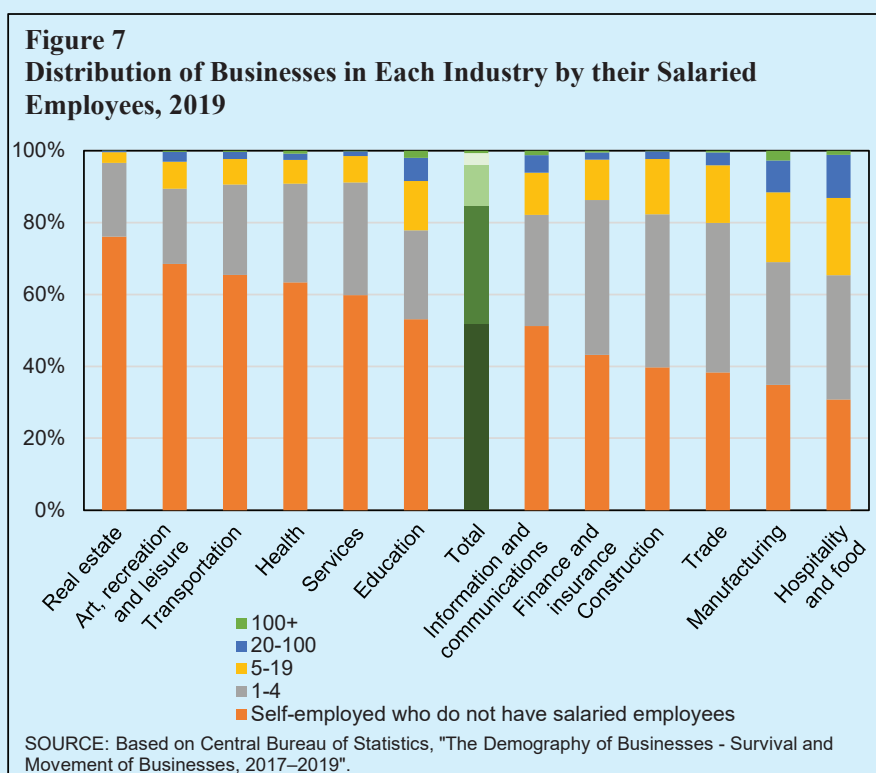
overlap between the two groups, since a large proportion of the micro businesses with revenue of up to NIS 300,000 are self-employed individuals who do not have any employees. It is therefore reasonable to assume that a large proportion of businesses with a revenue of less than NIS 300,000 that did not report any activity in July–August are self-employed individuals without any employees.

The effect of business closures on the labor market in a particular industry is derived from the number of businesses closed in that industry and the number of employees employed by them.¹¹ It is therefore possible to derive the effect on the labor market of a possible closure of businesses with a decline of 80 percent or more in their revenue during the crisis by combining the data presented in Figure 6 for the number of businesses that recorded a major drop in their revenues in each industry with the data in Figure 7 on the breakdown of businesses according to number of employees.



¹¹ It goes without saying that the situation of the labor market in a particular industry is also affected by the number of businesses opened. However, at the time of writing, this information was not available to us.

Figure 6 indicates a relatively large number of businesses whose situation deteriorated to the point of closure in the real estate industry and in the services industry.¹² Nonetheless, against the background of the high proportion of self-employed individuals without any employees in these industries, the average effect of a business closure in these industries on the labor market is limited. In contrast, few businesses in the hospitality and food industry experienced a slowdown in their activity. However, due to the relatively high proportion of businesses with employees in this industry, the average effect of a business closure in this industry on the labor market is greater than in the real estate and services industries. In the art and entertainment industry, there are both relatively few businesses whose risk of closure increased and a relatively high proportion of self-employed without employees. This combination likely implies that the closure of businesses in this industry is not substantial. In contrast, it appears that the risk of closure increased among a relatively large number of businesses in the trade industry, and that the proportion of self-employed without employees in this industry is relatively small. Thus, the average effect of business closures in this industry on the labor market is not insignificant.



¹² The services industry is composed primarily of businesses that provide professional, scientific, and technical services. The real estate industry is composed primarily of businesses that lease out buildings. Revenues in these industries are dependent to a large extent on the income of businesses in other industries to which they provide services. Therefore, the overall downturn in the business sector during the COVID-19 crisis was reflected in a relatively sharp drop in the activity of businesses in the services industry and the real estate industry.

In conclusion, the number of businesses that experienced a significant slowdown in their activity increased during the COVID-19 crisis, as did their risk of closure. Yet at the same time, a significant proportion of them are small and micro businesses, and the effect of their possible closure on GDP, the credit risk of capital providers, and the labor market is limited. Nonetheless, additional periods of restrictions on business activity are liable to create a negative cumulative effect on their situation and to threaten their ability to survive, while increasing the probability that their risk of closure will be realized.

Box 4.3

KINEMORTOPHOBIA¹ DURING THE PANDEMIC OR “WHO’S AFRAID OF ZOMBIE COMPANIES?”

In a competitive market environment, the business landscape is constantly changing. New and more efficient inputs and production processes replace old ones, and less stable and less competitive businesses cease to exist. New industries emerge and old ones decline. Schumpeter (1950) termed this a process of “creative destruction”. Interference with this mechanism of evolution, whether it is initiated or endogenous, disrupts the resource allocation process in the economy. In this context, and from the perspective of the dramatic developments in the business sector during the past year, we focus on one of the most prominent issues discussed in the economic literature, namely that of zombie firms—poorly performing companies that do not manage to cover their debt service costs (principal) over time, but continue to operate in the market thanks to “artificial resuscitation” that allows them to refinance their debt.²

The phenomenon of zombie companies has been known since the late 1980s. However, the public discourse on the phenomenon has accelerated considerably over the past decade. As a result of the very low interest rate environment over a prolonged period of time, there were increasing warning signs with regard to business behavior in general and the lifecycle of firms in particular. It is claimed that easy access to money and a biased allocation of credit have led to the preservation, and even the encouragement, of the zombie phenomenon (Midrigan and Xu, 2014). The efforts of central banks and governments to mitigate the destructive effects of the COVID-19 crisis by means of assistance to the business sector³ have made those voices even louder. Thus, although this support is an important policy tool and a decisive factor in the attempt to maintain the functioning of the market and business continuity, grants and state-guaranteed loans have reignited the discussion of whether there is a danger of zombification of the economy (Caballero, Hoshi and Kashyap, 2008)⁴ or, in other words, an increased potential for the distortion of market mechanisms and harm to recovery efforts and long-term productivity (Andrews et

¹ From the Greek: Kine – movement; morto – death; phobia – fear. Kinemortophobia – fear of the walking dead, i.e., zombies.

² The economic literature suggests various methods for measuring and defining zombies (OECD, 2018). The most common definition depends on two parameters: (1) the company’s interest coverage ratio is less than 1 for a period of two years; and (2) Tobin’s Q is less than the industry median, if it is a publicly traded company for a period of two years. An alternative definition is a company that is over 10 years old and is unable to meet its interest payments ($1 > ICR$).

³ According to the OECD (2020), the volume of assistance provided to companies in order to stabilize the activity of the business sector varies greatly across countries. Thus, for example, in Sweden the grants provided totaled \$320 million (0.06 percent of GDP) and in New Zealand they totaled about NZD 1.7 billion (0.6 percent of GDP); in contrast, in Germany, they reached \$610 billion (about 15 percent of GDP), in Canada, they reached \$30 billion (1.3 percent of GDP) and in Switzerland they reached \$40 billion (6 percent of GDP). Even developing countries such as Brazil, South Africa, and Thailand are allocating the resources required to support business as part of a government assistance program. For further details, see also: “Support for Business during the Coronavirus Crisis”, (Institute for Government, 2020).

⁴ Zombification of the economy describes a situation in which public support programs and bank loans keep unsustainable companies (zombies) alive. This term came into common use following the crisis in Japan in the 1990s, which included a collapse of real estate prices, a prolonged period of low growth (stagnation), and a drop in productivity, which led to an increase in the number of zombie companies, the weakening of the banking system, and reduced investment in healthy companies. For an up-to-date description of the background and dangers of zombification, see various articles in *The Financial Times* and *The Economist*, as well as BIS (2020).

al. 2018; Banerjee and Hoffmann 2018, 2020; Schivardi, Caballero et al. 2008; Andrews and Petroulakis, 2019; Blattner et al. 2019; Acharya et al. 2019, 2020; Tracey 2019).⁵

Financial support from governments and central banks can therefore have an effect on the scope of the phenomenon. Thus, although government support programs, which totaled about NIS 40 billion in Israel (and whose take-up rate was more than 52 percent), provide relief for cash-strapped companies and make it possible for sustainable companies experiencing a shortage of liquidity to survive the shock, they delay “creative destruction”⁶, increase the budgetary burden, and are liable to create moral hazard due to their nondiscriminatory nature. This is due to the lack of an efficient approval mechanism that can ensure that assistance is focused on companies that truly need it. The central bank programs to provide liquidity to the banks (by means of monetary loans, the goal of which is to increase the supply of credit to companies by means of the banking system’s allocation mechanisms) operate in a similar manner. Since leveraged companies benefit from a relatively high survivability potential in a low interest rate environment, these monetary instruments are liable to camouflage the development of zombies, prevent reorganization, and preserve zombies for an extended period. However, it should be emphasized that an empirical test did not find a significant link between low interest rates and the frequency of the zombie phenomenon worldwide (Obstfeld and Duval, 2018; Bindseil and Schaaf, 2020). In contrast, there is widespread consensus that sufficient capitalization, alongside the efficiency of the regulatory frameworks in dealing with bankruptcy, limits the banks’ incentive for evergreening, i.e., supporting companies and refinancing their loans in order to prevent the recognition of credit losses, and the financing of zombies (Acharya et al. 2020; Caballero et al. 2008; Andrews and Petroulakis, 2019; Giannetti and Simonov, 2013; Schivardi et al., 2019).

In view of the massive government assistance, which was indeed called for in 2020, it appears that zombie companies have become a worldwide phenomenon. Deutsche Bank estimates that about 20 percent of publicly traded companies in the US are currently zombies, a level that is twice as high as in 2013 (T. Slock, DB Securities, 2020). This figure is also consistent with Bloomberg’s estimates, according to which about 15 percent of companies in the Russell 3000 Index, whose debt totals \$1.36 trillion, are zombies, as opposed to only 8 percent in 2008. It is also close to the 17 percent that prevailed at the beginning of the millennium (during the dotcom bubble). According to Creditreform (2020), one-sixth of the 550,000 companies in Germany can be classified as zombies. The level is above 20 percent in the UK, Canada, Spain, and Greece, while the rate of zombie companies is 21 percent in Japan and 18 percent in South Korea. It was also found that 25 percent of European companies finished 2020

⁵ Empirical findings show that zombie companies constitute a major barrier to economic growth. Thus, according to the BIS (2020), an increase in the proportion of zombie companies in the developed economies lowers productivity by 0.3 percent on average. According to an analysis carried out by the OECD, productivity in Italy and Spain would be higher by one percent if there were no zombie companies located there, and in Japan more than one-third of the drop in aggregate output during the last decade is attributed to zombie companies.

⁶ In 2020, there was no massive wave of company bankruptcies in Israel. The number of bankruptcy requests submitted to the courts by corporations (primarily companies) was not high and grew last year by only 2 percent (from 1,180 in 2019 to 1,200 in 2020), which was much less than expected in view of the pandemic. This level is also lower than expectations following the amendment of the bankruptcy laws, which went into effect in September 2019 and made the process faster and more streamlined. The main explanation for this is that the economy benefited from the effect of economic “pain relievers”, namely furloughs that reduced a major expenditure for companies, business grants and loans, deferral of debt payments, and more.

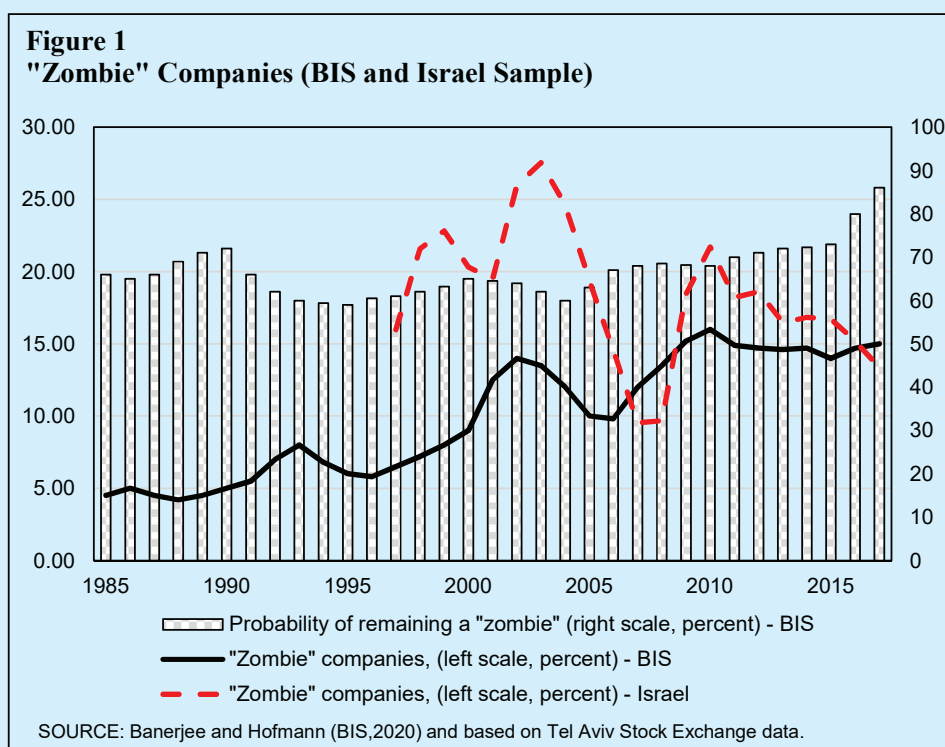
without any financial reserves, i.e. with only negligible working capital and without any cash reserves. Unsurprisingly, companies in the services, transportation, and real estate industries are particularly prominent in a breakdown by industry. The onset of the COVID-19 pandemic increased the number of businesses on the brink of financial failure and created super-zombies—impaired companies with particularly large debt appetites. Thus, since the outbreak of the pandemic, zombies have been responsible for a considerable increase of one trillion dollars in worldwide debt (Bloomberg, 2020).

However, zombies became common well before the COVID-19 crisis. An analysis of companies in 79 countries during the 2005–2016 period showed that about 10 percent of them, on average, were defined as zombies (Ghoul et al., 2020). In a recent study, based on public companies, Banerjee and Hofmann (BIS, 2020) estimated that the proportion of zombie companies in advanced economies increased from 1 percent in 1990 to 15 percent in 2017 (Figure 1).⁷ The main reasons for the observed trend were, in the researchers' opinion, low interest rates that reduced debt repayments, and the choice by banks to follow a policy of evergreening.

An examination of this issue in Israel prior to the crisis indicates that the proportion of zombies among public companies was not insignificant. As in the case of the BIS findings, their proportion reached a peak in 2010 and has since diminished (Figure 1). Recently, however, the trend has ended (with the share of zombie companies at 12 percent in 2018 and 2019). The highest proportions of zombies among public companies in Israel are in the oil and gas and biomed industries (22 percent), the manufacturing industry (17 percent), and the real estate industry (10 percent). Nonetheless, it should be noted that companies in the biomed industries (as well as in oil and gas) have unique cost structures, which are characterized by low revenues during their initial years of operation, and the indicated scope of this phenomenon is therefore biased, apparently upward. In absolute numbers, the manufacturing and real estate industries have the highest number of zombie companies. It appears that, as in the BIS findings, these companies are the most leveraged in Israel and invest less in R&D. Zombie companies' share of total liabilities during the decade prior to the current crisis was about 20 percent on average. Earlier in the period, they were led by holding and investment companies and pyramids, and in later years by biomed companies and oil and gas exploration companies, which as mentioned are characterized by a unique cost structure. Zombie companies' share of liabilities (according to par value) in the corporate bond market is about 5 percent. It should be emphasized that the population of public companies is not necessarily representative in Israel, or in other countries.⁸ This is due to the relatively large size of these companies and the variety of financing alternatives available to them. Indeed, an examination of the scope of the phenomenon among more than 600,000 businesses on the basis of models for estimating a firm's financial resilience (failure score data

⁷ The research found that zombies are usually smaller companies that are highly leveraged and have relatively low productivity. They grow at a slower rate in terms of assets and number of workers, and they invest less in tangible and intangible assets. Zombie companies obtain subsidized credit because the interest rate they pay is similar to that paid by other companies, despite the fact that their productivity is lower and their risk of bankruptcy is higher. Zombie companies' share of total assets and total liabilities is 6–7 percent on average per country.

⁸ The identification of zombie companies today is a particularly complex exercise, since it is difficult to estimate how the COVID-19 crisis will affect the business model of many companies in the medium and long terms. This is due to changes in future demand patterns in a number of fields, such as transportation, tourism, services, and commercial real estate. Furthermore, the central banks' involvement in the markets distorts the value of the companies and the ability to estimate the level of liquidity that is available to them for redeeming debt.



calculated by D&B) shows that during the years prior to the COVID-19 crisis (2014–19), close to 40,000 businesses (about 7 percent of all active companies) on average were defined as zombies—companies with low or particularly low repayment ability—and about 98 percent of them were micro companies. The implication is that alongside the natural dynamic of the lifecycle of firms in the economy, which is reflected in the closure of active businesses (estimated at about 40,000 to 50,000 per year), a similar percentage of companies have the status of particularly low repayment ability (zombie companies).

The harm caused by zombie companies is ongoing. According to the findings in BIS (2020), companies are remaining in this situation for longer than in previous years (Figure 1). Moreover, of the roughly 60 percent of companies that manage to improve their situation so as not to be included in this undesirable category, many nonetheless experience long-term weakness in productivity, profitability, and growth, resulting in low long-term performance. In addition, it was found that the chance of former zombie companies again becoming zombies is three times higher than companies that were never in that category. It therefore appears that the zombie disease also causes long-term damage to businesses that recover from it. The likelihood of remaining in the zombie category in Israel, which was calculated on the basis of failure scores using two-year transition matrices between risk categories, has risen significantly in recent years, as was found by the BIS research, and has settled within the range of about 65–78 percent on average (Table 1).

Table 1: Two-year transition matrix between risk categories (2017–19)

The situation in the previous year/ The situation in the current year	Lower than average risk of failure	Higher than average risk of failure	Particularly high risk of failure	Inactive business
Lower than average risk of failure	89	0.2	1.1	9.9
Higher than average risk of failure	8.1	78	5.6	8.4
Particularly high risk of failure	0.8	15	64.8	19.4

SOURCE: Based on D&B Israel.

Given the findings, the question arises of how to deal with the “walking dead”. Policy measures that are meant to deal with the phenomenon, such as permanent closure of the companies, employee layoffs, and payment to creditors, are liable to deepen the current slowdown and transform it into a long-term recession. Under certain circumstances, the current phenomenon of zombie companies in Israel appears to be a limited problem rather than a long-term threat. Assuming that the deviation from the “creative destruction” process continues for only a short time—until the end of measures to deal with the pandemic and a broadly based and continuous opening of the economy—the suboptimal allocation of resources is expected to be tolerable. However, if the pandemic continues for a longer period and the lockdown policy remains in force, the damage to the real economy and to the natural selection mechanisms will grow. Nonetheless, and in contrast to previous crises, there are at least three factors that should ease the recovery process and mitigate the phenomenon:

- First, the shock of the pandemic has harmed companies in industries with a relatively high potential for recovery. The damage caused was not the result of excess risk taken on by the companies or the banks, as was the case in the Global Financial Crisis. The unique character of the crisis meant that many companies that are ostensibly characterized as zombies are simply sustainable companies that are experiencing a temporary liquidity shock due to the restrictions that led to the collapse of aggregate demand.
- Second, in comparison to previous crises (2008–09 and 2011–12), the current crisis found the banks with relatively high capital buffers and resilience, and therefore able to absorb credit losses to a greater degree. They also have the ability to absorb the expected rise in bankruptcies next year. This should also reduce their incentive for “perpetual rollover” and the financing of zombies.
- Third, the health and economic consequences of the pandemic led to a particularly large scale of government support, which limited the decline in liquidity levels and significantly reduced the risk that the liquidity crisis would become a solvency crisis. An examination of the take-up level of the state-guaranteed funds indicates that in fact the segment of companies with the highest risk—namely micro companies, among which the proportion of zombie companies is the highest—is characterized by a low take-up level of the fund in the designated track. Thus, less than half of the allocated amount was used (usage of NIS 1.7 billion by 4,195 companies whose requests were approved). It appears that the low take-up rate of this fund is explained by its more stringent conditions relative to the regular track.

In conclusion, the intensity of the current shock called for large-scale government intervention in order to prevent a high level of financial distress in the economy (Gourinchas et al., 2020). It is worthwhile developing efficient and implementable approval mechanisms that will ensure that support is channeled only to companies that are sustainable despite their current low liquidity. Carrying this out during the crisis is especially challenging, and government intervention is therefore a compromise between maintaining the functioning of the economy and the risk of continuing to finance companies that are on the brink of bankruptcy (Gagnon, 2020). On the other hand, there are growing voices calling for preventative measures (G30, December 2020), a position that calls for decision makers to make the hard choices according to widely accepted principles, including a shift from large-scale direct support for businesses to measures focused on industries and companies with a relatively high potential for sustainability; limiting the support only to industries and companies for which there is solid evidence of a market failure; creation of collaborations with the private sector for the purpose of financing and reorganization of debt; steps to increase the capital component of the companies and conditioning support on its proportion of total assets; and strengthening the regulatory mechanisms to deal with bankruptcies while maintaining economic recovery.

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Chapter 5

The Labor Market during the COVID-19 Period

PART 1: DEVELOPMENTS IN EMPLOYMENT AND WAGES

- Due to the COVID-19 crisis, economic activity was restricted, which impacted businesses and their capacity to continue employing their staff. Consequently, the working-age employment rate declined sharply.
- Government-provided assistance somewhat mitigated the shock to the labor market. Most employees were not dismissed, thanks to the implementation of furloughs and extended eligibility for unemployment benefits to "COVID-19 Absentees". The decrease in the participation rate was moderate.
- Broadly defined unemployment among those aged 15 and over increased from 3.4 percent to 37 percent during the first lockdown, and following a temporary decline after the lockdown period, increased once again to 21 percent during the second lockdown. The number of those unemployed (broad definition), never dropped below 500,000 throughout the crisis (12 percent of the labor force).
- The impact of the COVID-19 crisis was especially severe in those industries that require physical attendance and working with people. In other industries, restrictions were more moderate, and in some industries businesses successfully adapted their operations to physical distancing restrictions, including by transitioning to working from home.
- Industries with lower average wages and low productivity were more severely impacted during the crisis, both because they involve greater interpersonal interaction and due to the government's attempt to regulate activity restrictions in order to moderate the impact on economic activity. This led to a more moderate impact on GDP, but resulted in many people being out of work, particularly employees from weak socioeconomic backgrounds.
- Due to the demographic composition of the unemployed, the average wage per employee post increased significantly. A simulation that eliminates the effect of the change in the composition of employees on the average wage shows a very slight increase in wages of employees who continued to work. However, in some industries the wages of those employees who continued to work actually declined. The development of their wages was correlated with the development of the number of people employed in the industry.
- The duration of absence from work for all groups of unemployed persons at the end of the period was longer than in the previous year. In particular, by December, 45 percent of all furloughed employees had remained on furlough for longer than 27 weeks. This was similar to the ratio among all other unemployed persons—51 percent. However, in December 2019 only 36 percent of the unemployed (narrow definition) had been unemployed for longer than 27 weeks.
- Reemploying all of the unemployed may be particularly difficult due to their large number and long absence period.

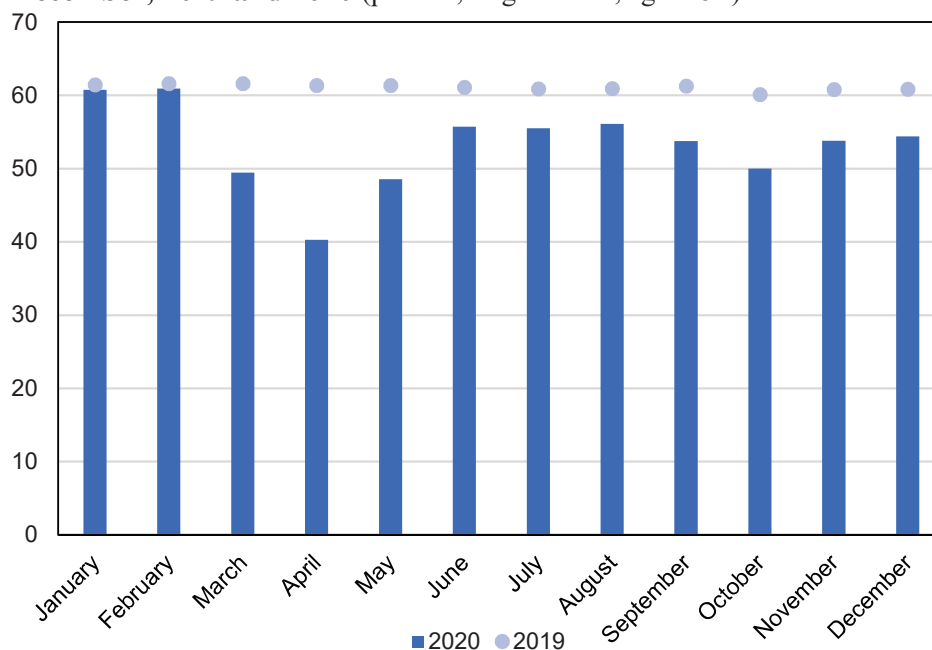
a. Introduction

The health crisis sent deep shock waves through the labor market. The employment rate dropped concurrently with unprecedented increase in the broad definition of the unemployment rate.

The health crisis that affected the world in 2020 sent deep shock waves through the Israeli labor market. After several years of growth, reflected in significantly higher employment and a lower unemployment rate, the COVID-19 pandemic caused a sharp change. The virus outbreak in Israel in late February made physical distancing measures necessary, and in order to slow down the transmission rate, economic activity was curtailed from March. Three country-wide lockdowns were imposed, during which a significant portion of economic activity was shut down. Concurrently, multiple assistance measures were implemented to support businesses and employees impacted by the restrictions on economic activity. Government assistance to the labor market, primarily the furlough (unpaid leave) measures and extended eligibility for unemployment benefits, have allowed for some of the impact of this crisis to be absorbed, but the duration and intensity of this crisis are unique.

The implementation of restrictions was aligned with the pace of the virus spread in the economy. The rapid transmission of the virus and the growing morbidity rates mandated suspension of a significant portion of economic activity in March. Many businesses were required to suspend or reduce their operations and dismiss

Figure 5.1
Broad Employment Rate as a Share of Total Population, January–December, 2019 and 2020 (percent, original data, ages 15+)

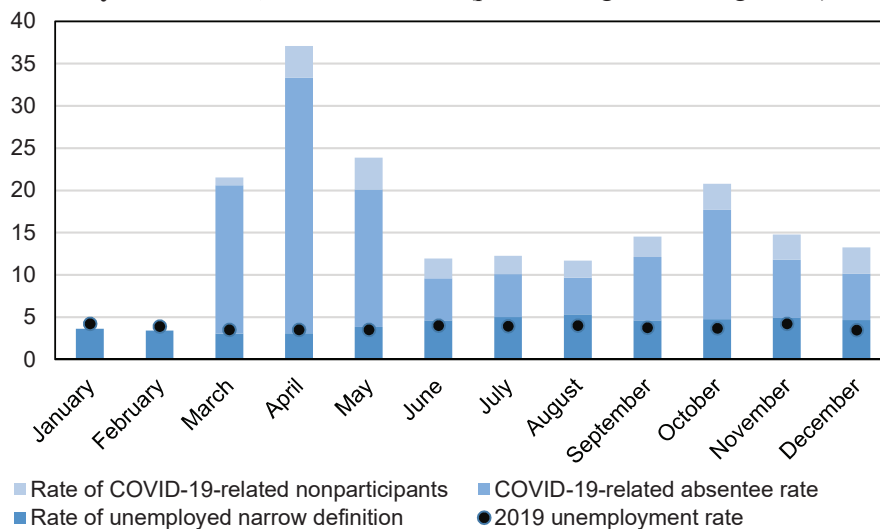


Note: The broad definition of the employment rate refers to the period from March to December 2020. Prior to that period, the employment rate was defined in its narrow sense (the normal definition).

SOURCE: Based on Central Bureau of Statistics.

or furlough their employees. Consequently, the broadly defined employment rate for those aged 15+, which was at 61 percent immediately prior to the crisis, dropped by an unprecedented 20 percentage points during the first lockdown (Figure 5.1).¹ The broadly defined unemployment rate for those aged 15+, which was at a historically low 3.4 percent of the labor force prior to the crisis (February 2020), soared to 37 percent in April, and the (broadly defined) number of unemployed persons soared to over 1.5 million (Figure 5.2).² About one month after the lockdown was imposed, various

Figure 5.2
Broad Unemployment Rate as a Share of the Total Labor Force,
January–December, 2019 and 2020 (percent, original data, ages 15+)



Note: The broad definition of the unemployment rate refers to the period from March to December 2020. Prior to that period, the unemployment rate was defined in its narrow sense (the normal definition). The definition of the labor force remained unchanged in 2020 (it does not include "nonparticipants for reasons related to COVID-19").

SOURCE: Based on Central Bureau of Statistics.

¹ This analysis is based on Central Bureau of Statistics definitions, which were revised in view of the crisis. The group of those employed using the broad definition includes all those surveyed who worked, full time or part time, during the determining week, or were absent for reasons unrelated to the crisis. This group does not include most furloughed employees, i.e., the "COVID-19 absentees"—employees who were temporarily absent from work for crisis-related reasons: reduced employment scope, suspension of business, etc.

² Broadly defined unemployment consists of three components: (a) (narrowly defined) unemployed persons – persons who did no work at all during the determining week, who actively looked for work in the four weeks prior to being included in the survey; (b) "COVID-19 Absentees" – employed persons temporarily absent from work for crisis-related reasons: reduced employment scope, suspension of business, etc.; (c) "nonparticipants for COVID-19-related reasons" – persons who do not participate in the labor force due to dismissal or the closure of their place of work since March, and others who do not participate in the labor force for other reasons, who wished to work now and did not look for work for COVID-19-related reasons.

businesses were gradually reopened in keeping with the emergency regulations, but the renewed proliferation of the virus resulted in a further suspension of activity from mid-September. The effect on the economy during the second lockdown, particularly on employment, was more moderate than during the first lockdown. This is probably due to better adaptation of operations to the COVID-19 routine, along with less stringent restrictions, and possibly also due to more lax compliance with physical distancing guidelines. After emerging from the second lockdown, morbidity rates continued to rise, resulting once again in stricter restrictions toward the end of the year and in early 2021.

On an annualized basis, the broadly defined employment rate among those aged 15+ declined from 61.1 percent in 2019 to 53 percent in 2020, and the broadly defined unemployment rate soared from a historically low 3.8 percent to 15.7 percent (Table 5.1). The number of those unemployed (broadly defined), never dropped below 500,000 since the crisis started.

Table 5.1
Main labor market indicators, 2018–20

				(ages 15+)	
	Yearly averages, thousands			Rate of change relative to last year, percent	
	2018	2019	2020	2019	2020
Population ^a	6,363	6,494	6,620	2.1	1.9
Participation rate ^{b,c}	63.9	63.5	61.8	-0.4	-1.7
Broad employment rate ^{b,c}	61.4	61.1	53.3	-0.3	-7.8
Broad unemployment rate ^{b,c}	4.0	3.8	15.7	-0.2	11.9
Number of employed persons ^c	3,905	3,967	3,525	1.6	-11.1
Labor input per week (hours) ^c	152,515	156,863	141,959	2.9	-9.5
Nominal wage per employee post ^{e,d}	10.2	10.5	11.2	2.9	7.1
Real wage per employee post ^{e,e}	9.8	10.0	10.8	2.0	7.8
Nominal GDP per work hour in the business sector ^f	104	109	120	5.1	9.9
Gross unit labor cost in the business sector ^f	101	100	96	-1.2	-4.0
Employee posts ^c	3,900	3,979	3,583	2.0	-9.9
Job vacancies	103	99	59	-3.1	-40.5

The broad unemployment rate includes the following three components: 1) The unemployed under the narrow definition (unemployed who are seeking jobs); 2) Absentees due to COVID-19 (employees who are temporarily absent from their jobs due to reasons having to do with COVID-19, including most furloughed employees); and 3) Labor force nonparticipants due to reasons having to do with COVID-19.

^a The population includes permanent residents, permanent residents who do not have Israeli citizenship and live in Israel and abroad less than one year, and tourists and temporary residents in Israel more than a year.

^b The employment and unemployment rates are presented in percentages and the change relative to the corresponding period last year in percentage points. The definitions of the unemployment and employment rates are according to the broad definition, as of the period from March to December 2020. Prior to this period, the definitions are in line with the narrow (normal) definition. The definition of the participation rate remained the same in 2020 (it did not include the group of "nonparticipants due to reasons having to do with COVID-19").

^c Including foreign workers and laborers from the West Bank.

^d Shekels in current prices.

^e Shekels in fixed prices, 2011=100.

^f Base: 2017=100.

SOURCE: Based on Central Bureau of Statistics Labor Force Surveys and National Accounts data.

The analysis below is mostly based on data from the Central Bureau of Statistics' monthly Labor Force Surveys, merged with payroll data from the 2018 employee-employer file.³ These surveys allow the monitoring of the respondents' employment status over time.⁴ The analysis is focused on the prime working-age population (those aged 25–64), and is based on the narrow definition of unemployment, which includes only unemployed persons and “COVID-19 Absentees”. (As noted above, these include most furloughed employees.) This definition (hereinafter: “unemployment”) excludes the group of “nonparticipants for COVID-19-related reasons”.⁵ However, the group of those employed (hereinafter: “employed”) includes all respondents who worked full time or part time in the determining week (the week when the survey was conducted), or who were absent for reasons unrelated to the crisis (excluding “COVID-19 Absentees”). This analysis is focused on an examination of developments in the labor market in March to December of 2020. Because the data in Labor Force Surveys are not adjusted for seasonality, the comparison is made to the corresponding period last year.⁶ These data were combined with other labor market indicators from other information sources.

b. Development of employment by industry

Due to restrictions on economic activity, the employment rate in March–December declined sharply, from 78.2 percent in the corresponding period in 2019, to 67.6 percent.

Application of the furlough model motivated employers to place employees on furlough in response to the crisis, rather than reduce the number of weekly work hours of those employed while retaining more employees in the workplace. (See discussion later in this chapter.) The decrease in labor inputs (total weekly work hours of the employed) was slightly more moderate than the decrease in the number of those employed and the number of salaried positions, primarily because many of those who

The number of work hours declined, primarily due to reduced employment of part-time employees. The number of work hours for those who continued to work remained stable.

³ Payroll data from the 2018 employee-employer file are the most current available payroll data. The analysis was conducted at the Central Bureau of Statistics research room at the Bank of Israel.

⁴ Labor Force Surveys exclude those living in institutions (boarding schools and retirement homes) and Bedouins who live outside permanent settlements in the south of Israel. The surveys include foreign workers and migrant workers who live in apartments, but exclude Palestinians (other than permanent residents of eastern Jerusalem) who work in Israel.

⁵ This component was excluded from the analysis, because it is only specifically defined as from March 2020. As such, including it would not have allowed us to maintain consistency in the definition of unemployment for comparison with previous years. The rate of nonparticipants for COVID-19-related reasons out of the entire population in March–December 2020 was 1.7 percent in both age groups (prime working age and those aged 15+).

⁶ Accordingly, the definition of employed and unemployed would vary in previous years to maintain consistency.

left work had worked part-time, and the average number of work hours for employees who remained employed was practically unchanged.⁷

The imposition of stricter restrictions had different effects on various industries, primarily due to their capacity to adapt their operations to the social distancing restrictions. This resulted in a dual impact on the economy—with some industries significantly impacted by the restrictions, while others continued to grow (although at a more moderate pace than in previous years). The impact was reflected in the lower number of employees in the industry and in its revenue (Table 5.2).

Table 5.2

Indicators of the impact to business sector industries during the crisis, March–December, 2019 and 2020

		(percent, original data, peroidic average)			
Industry distribution by the extent of the impact of the COVID-19 crisis	Main industry	Share of total employed persons ^a	Employed persons ^a	Salaried positions ^b	Industry revenue ^c
			Average rate of change, March–December 2020 compared with the same period in 2019		
Industries impacted more than the average	Hospitality and food services	3	-48	-47	-43
	Art, entertainment and leisure	2	-31	-42	-37
	Other services	3	-26	-21	-37
	Administrative and support services	4	-27	-16	-23
	Total	13	-33	-30	-32
Industries impacted at the average level	Transportation and storage	5	-18	-15	-20
	Wholesale and retail sales	11	-15	-16	1
	Construction	6	-14	-14	6
	Real estate	1	-14	-13	-6
	Agriculture, manufacturing, mining and quarrying	11	-13	-6	2
	Professional, scientific and technical activity	9	-8	-10	3
	Total	64	-13	-12	0
Industries impacted less than the average	Information and communications	7	1	-4	4
	Finance and insurance activity	4	-5	-8	1
	Electricity and water	1	-1	0	4
	Total	17	-1	-5	4
Total - all industries^d		100	-15	-16	-2

^a Prime working ages, Labor Force Survey data, and Research Department calculations. The share of total employees is based on data from 2019.

^b Ages 15+, Israeli employees, Central Bureau of Statistics data.

^c Fixed prices, based on Central Bureau of Statistics data.

^d Selected industries, not including all industries in the economy.

SOURCE: Based on Central Bureau of Statistics Labor Force Surveys and National Accounts data.

Distancing restrictions resulted in a dual impact on the major industries. Some industries saw a significant decrease in demand for their goods and services, while demand in others remained stable.

An examination of the impact on industry revenue shows it to be positively correlated with the impact on employment. However, as shown in Table 5.2, in most of the industries that suffered an average adverse impact, as well as in those with below-average impact, the decrease in employment was sharper than the decrease in revenue.

⁷ The number of weekly work hours for employees who worked continuously over the past two years was similar to that figure last year – about 40 hours.

Table 5.3

Indicators of business sector industry characteristics prior to the crisis, 2019 and September–December 2020

(original data, prime working ages, periodic average)

Industry distribution by the extent of the impact of the COVID-19 crisis		Main industry	Exports as a share of revenue ^a	Average real wage per employee post ^b	Rate of sales, service, and general workers ^c	Rate of those working from home ^c
			2019 data			
Industries impacted more than the average	Hospitality and food services	17.0	4,870	62.5	4.0	
	Art, entertainment and leisure	9.7	6,118	13.9	21.1	
	Other services	7.4	5,517	43.8	19.5	
	Administrative and support services	22.1	5,827	51.7	8.8	
	Total	18.3	5,494	46.5	12.2	
Industries impacted at the average level	Transportation and storage	38.6	11,082	10.6	6.7	
	Wholesale and retail sales	11.8	8,690	38.9	9.9	
	Construction	2.0	9,455	6.2	4.6	
	Real estate	8.0	11,270	7.1	31.4	
	Agriculture, manufacturing, mining and quarrying	43.9	13,204	8.0	12.9	
	Professional, scientific and technical activity	28.1	14,167	0.8	37.8	
	Total	22.8	11,164	14.2	15.7	
Industries impacted less than the average	Information and communications	48.9	20,865	2.0	54.2	
	Finance and insurance activity	18.0	17,804	2.7	34.0	
	Electricity and water	2.1	17,904	13.9	12.9	
	Total	33.5	19,577	3.1	44.4	
	Total - all industries^d	23.7	10,605	18.3	20.0	

^a Percent, revenue on which VAT is zero as a share of all revenue. Central Bureau of Statistics data for 2018.^b Shekels in fixed prices. Base year 2011.^c Percent, rate of those working from home between September and December 2020 relative to total employed persons in the corresponding period last year. Central Bureau of Statistics Labor Force Survey data and Research Department calculations.^d Selected industries, not including all industries in the economy.

SOURCE: Based on Central Bureau of Statistics Labor Force Surveys and National Accounts data.

Table 5.3 presents the differences in industry features immediately prior to the crisis, by degree of impact resulting from the crisis. Some industries were more moderately affected, with demand for their goods and services remaining stable. Some of the prominent industries where revenue and employment remained solid are the information and communications industry, financial services and insurance industries, electricity and water industries. Demand for goods in these industries remained stable, partly due to exports' high share of the industry's revenue (information and communications industry) and rigid local demand (financial services and insurance industries, and electricity and water industries).

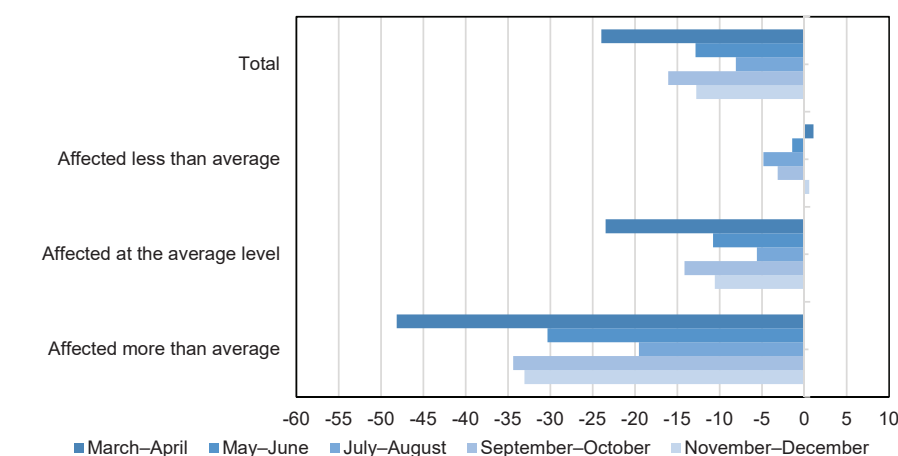
The impact of the COVID-19 crisis was especially severe in those industries that require physical attendance and high interpersonal interaction. The most severely affected industries include hospitality and food services, and art, entertainment and leisure. These industries were almost completely disabled during the lockdowns and only partially operated between lockdowns. An examination of the pre-COVID-19 attributes of these industries in Table 5.3 shows that the percentage of sales and service staff and general staff in these industries was higher than in other industries. The number of those employed in these occupations declined by 20 percent compared to the previous year—more than in other occupations. Research conducted in other

Most of the impact was absorbed by industries that require physical attendance and working with people, in which high rates of working from home are not possible.

countries also shows that many employees in these occupations, particularly in occupations that require physical attendance and interpersonal interaction, lost their place of work during the crisis (Brussevich, et al. 2020 and Tsvetkova, et al. 2020).⁸

The percentage of employees working from home also shows differences between severely affected industries and those that were more moderately affected. Table 5.3 shows the percentage of employees who worked from home in September–December, out of total employees in the corresponding period last year. In more severely affected industries, this ratio was 12 percent, compared to 44 percent in moderately affected industries.⁹

Figure 5.3
Change in the Number of Employed Relative to the Corresponding Period Last Year, Divided by Business Sector Industry Groups According to Extent of Impact, March–December, 2019 and 2020 (percent, original data, prime working ages)



SOURCE: Central Bureau of Statistics and Research Department analyses.

The fact that the crisis impacted industries where average wages and productivity were lower prior to the crisis has mitigated the impact on output but has widened income gaps between employees.

Earning and productivity profiles of employees who continued to work and of those whose work was interrupted due to the crisis were highly affected by their occupation and their capacity to work from home. Whereas most of the sales and service staff

⁸ A. Tsvetkova, S. Grabner and W. N. Vermeulen (2020). “Labour Demand Weakening during the COVID-19 Pandemic in US Cities”, OECD Local Economic and Employment Development (LEED) Papers.; M. Brussevich, E. Dabla-Norris, and S. Khalid (2020). “Who Will Bear the Brunt of Lockdown Policies? Evidence from Tele-workability Measures Across Countries”, *IMF Working Paper No. 20/88*.

⁹ Data on working from home are only available for September–December 2020. At the industry level, the percentage of employees who worked from home out of all employees who continued working during this period does not reflect the industry’s capacity to expand working from home, because the employees who continued working during this time are relatively highly capable of working from home in the first place. Therefore, we instead calculated the ratio of employees who worked from home during this period to total employees in the industry in the corresponding period last year.

and general staff are employed at lower wages¹⁰, a significant portion of the more moderately affected industries, such as the information and communications industry or the financial services and insurance industries, employ mostly white-collar staff with a relatively high capacity to work from home and high earning capacity (Dingel and Neiman, 2020).¹¹ This mitigated the impact on productivity and output of these industries (by payroll, which is a close approximation of employee productivity), but expanded the income gaps between employees. (See Chapter 7.)

Table 5.4
Indicators of industrial activity in the business sector, rate of change, March–December 2020 compared with 2019
(original data, prime working ages)

Industry distribution by the extent of the impact of the COVID-19 crisis	Main industry	Ratio of entries to exits in the industry ^a			Ratio between the number of unemployed and the number of job vacancies in the industry ^b	
		2019	2020	Rate of change, 2019–2020	2019	2020
Industries impacted more than the average	Hospitality and food services	1.01	0.38	-0.62	0.66	21.34
	Art, entertainment and leisure	1.06	1.12	0.05	2.27	62.62
	Other services	0.96	0.63	-0.34	2.20	35.73
	Administrative and support services	1.32	0.70	-0.47	0.73	7.24
	Total	1.12	0.62	-0.45	0.88	16.97
Industries impacted at the average level	Transportation and storage	1.14	1.85	0.62	0.95	17.55
	Wholesale and retail sales	1.03	1.09	0.06	1.26	11.36
	Construction	1.17	1.22	0.04	0.68	4.47
	Real estate	0.67	1.10	0.64	3.31	45.61
	Agriculture, manufacturing, mining and quarrying	0.88	1.16	0.32	1.34	7.49
	Professional, scientific and technical activity	1.41	1.00	-0.29	1.19	9.69
Industries impacted less than the average	Total	1.07	1.17	0.09	1.12	9.11
	Information and communications	1.45	1.75	0.21	0.57	2.49
	Finance and insurance activity	1.14	1.41	0.23	1.42	7.24
	Electricity and water	5.95	0.86	-0.86	0.90	3.80
	Total	1.45	1.55	0.07	0.72	3.16
Total - all industries^c		1.13	1.07	-0.05	0.98	9.44

^a The number of employees entering industry X: The number of employees who worked during the previous survey round in an industry different than the industry in which they are working during the current survey month. The number of employees leaving industry X for another industry: The number of employees who worked in industry X during the previous survey wave and worked during the current survey month in a different industry.

^b Job vacancy data at the industry level are based on Central Bureau of Statistics estimations, while the number of unemployed is based on Labor Force Survey data compiled by the Central Bureau of Statistics and Research Department analyses (unemployed among those aged 15+).

^c Selected industries, not including all industries in the economy.

SOURCE: Central Bureau of Statistics Labor Force Survey data and Bank of Israel Research Department analysis.

¹⁰ An examination of the composition of employees in the 4th and 5th income quintiles by occupation in 2019 shows that in these income quintiles, the percentage of employees in sales and service occupations and general employees is relatively low: We found that only 10 percent of employees in these two income quintiles were general employees. Twenty percent of them were in sales and service occupations, whereas these income quintiles accounted for at least 30 percent of all other occupations.

¹¹ J. Dingel and B. Neiman (2020). “How Many Jobs can be Done at Home?” *Journal of Public Economics*, 189.

The occupational structure of each industry also impacted the outline of its activity development throughout the year. Therefore, a positive correlation exists between the rate of decrease in the number of those employed during the first lockdown and the rate of decrease during the second lockdown (Figure 5.3). The industries more affected during the first lockdown were more affected during the second lockdown as well, and their recovery from the lockdowns was slower than in other industries.

Industry differences in the development of employment during the crisis may be due to the nature of the industry's operations, but may also result from different adaptations made by industries in response to the physical distancing restrictions.

The differences in the impact on employment between the two lockdowns may be due to differences in how operations were adapted to the social distancing restrictions. According to a real-time survey by the Central Bureau of Statistics (Round 7), businesses adapted their operations throughout this period in various ways, depending on the major operations of each industry.¹² Whereas the information and communications industry, the professional and technical services industry, and the financial services and insurance industry significantly increased their work-from-home rates, turned to online sales, accessed new markets, and made changes to their customer mix—other industries, such as the retail trade industry and the food and beverage services industry mostly adapted their operations by transitioning to working in shifts and increasing sales by couriers. Therefore, it may be that beyond the nature of industry operations and of the restrictions, the adaptations made by more moderately affected industries helped them in resuming operations.

This differential impact on industries, reflected in reduced numbers of employees and of vacant positions offered by different industries, resulted in employee transition between industries, in line with the extent of the impact on the industry.

The number of unemployed per vacant position in the economy rose sharply.

On an economy-wide level, the unemployment to vacancy ratio increased in March–December of this year, compared to the corresponding period in 2019, from 1 to 10 (Table 5.4). This increase was due both to a decrease in the number of vacancies and an increase in the number of unemployed, reflecting the challenge of finding a job during this period.

An industry-based examination shows that the industries that were more severely impacted during the crisis, with a higher unemployment to vacancy ratio, also had a net outflow of employees employed in those industries prior to the crisis, who transitioned to other industries. Such transitions between industries, throughout the period, were apparently due to more extensive employment opportunities in industries that were more moderately impacted.¹³

¹² Real-Time Survey, Round 7, conducted on August 5–7, 2020

¹³ As this is a transition between industries of employees who remained employed throughout the period, the ratio of inflows to outflows across all industries adds up to 1.

c. Wages

The average nominal wage per salaried position for Israeli employees, as reported by the Central Bureau of Statistics, increased exceptionally during the period (by 8.2 percent across all industries, and by 10.5 percent in business sector industries, in March–December over the corresponding period in 2019). This increase reflects the change in composition of employees, and does not indicate a wage increase for those who remained employed throughout the period. Following the first lockdown, the average wage declined at first, probably due to a decrease in the number of work hours and expense reimbursement payments to employees who continued to work, with some working from home. However, as those employees with higher wage profiles returned to full employment, the average wage rose sharply. The average wage settled at a higher level than before the crisis, primarily due to the fact that the newly unemployed (mostly employees on furlough) had lower wages (prior to the crisis) than those who remained employed. These developments took place in both the business sector and the public services sector, but the overall increase in the average wage in the public services sector was more moderate, due to fewer employees dismissed or furloughed in this sector.¹⁴

Productivity was also impacted by precrisis wage differences (which is a close approximation of employee output), between those who became unemployed and those who remained employed. Since the rate of increase in business sector output was higher than the rate of increase in wages per employee post in this sector, the unit labor cost in this sector was slightly lower (Table 5.1). This is evidence of the significant flexibility of the labor market in Israel during crisis periods, which was also evident in crises of the early 2000s and 2008–09.¹⁵

One of the key questions regarding the change in wages concerns the development of the average wage in the business sector, excluding the effect of the change in the composition of those employed. Since there are no detailed data about wages of each salaried employee in 2019–20, we estimated this effect. In the simulation, we held the wages of salaried employees who were employed during the period constant at their 2018 wage (based on data from the Central Bureau of Statistics' 2018 employee-employer file), and calculated the change in average wages across the period in

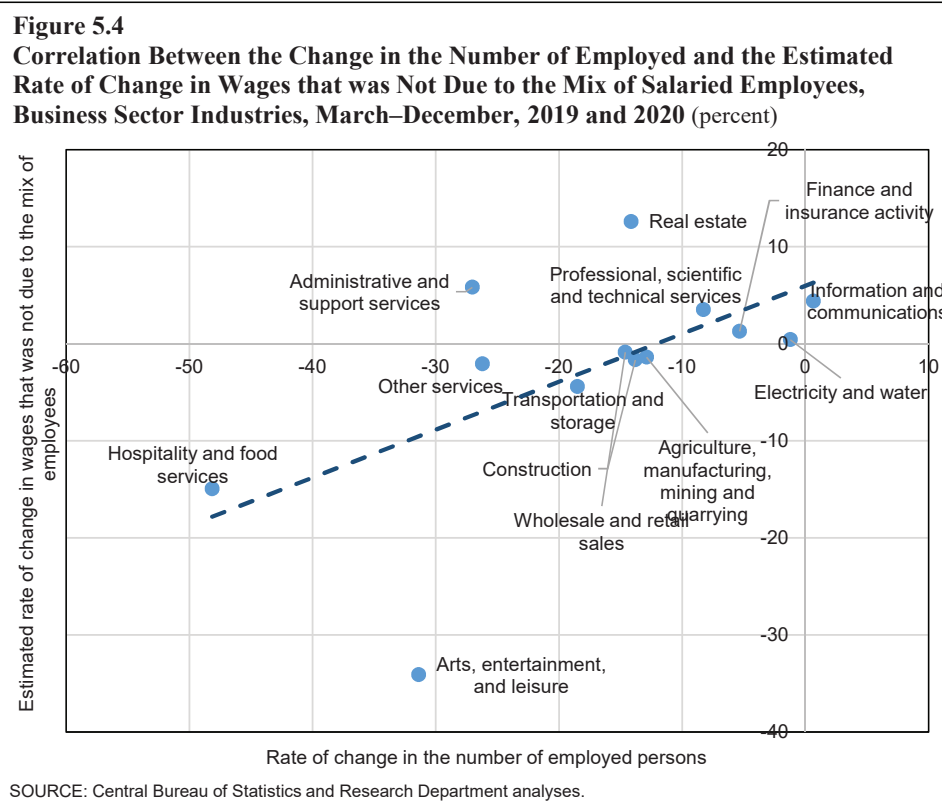
The average wage per salaried position increased exceptionally due to the demographic composition of the employed.

A simulation that eliminated the effect of the change in employment composition on the average wage shows only a slight increase in the wages of employees who continued to work.

¹⁴ During the crisis, multiple collective bargaining agreements were signed, which defined the labor outline in the public sector during this period. Pursuant to the first agreement, some 70 percent of the public sector employees who were not classified as essential employees were placed on paid leave – against their accrued or future vacation. Pursuant to the second agreement, the furlough for nonessential employees was extended, but some of the paid leave would come at the employers' expense. Pursuant to the third agreement, all employees returned to work, except for those employees no longer required under the new routine conditions. (Employers of such employees were required to pay 67.5 percent of their base wage.) Along with these agreements, some separate agreements were signed with specific groups, such as agreements with healthcare and educational staff. (See the guidelines by the Supervisor of Wages, Wage and Employment Agreements Division, Ministry of Finance).

¹⁵ See Chapter 5 of the Bank of Israel's Annual Report for 2011, "Evidence of Improved Efficiency in the Israeli Labor Market"; and "Calculation of Flexibility Using the OECD Methodology", Recent Economic Developments, 132 (September–December 2011), Bank of Israel.

this case.¹⁶ (We assuming that the entire calculated change, as described, is due to the change in the mix of salaried employees, as each employee's wages remained constant.) We then deducted the resulting estimate from the change in actual average wage per employee post, to obtain the change in average wage not resulting from change in the mix of salaried employees.¹⁷



¹⁶ The monthly wage of salaried employees in the employee-employer file was calculated by dividing the annual wages by the number of months in which the salaried employees actually worked in 2018. The definition of “salaried employee” differs between the two files. Data for employee posts by industry only include Israeli employees, whereas Central Bureau of Statistics data available to the Bank of Israel also include foreign workers and migrant workers who live in apartments, but not Palestinians (other than permanent residents of Eastern Jerusalem) who work in Israel.

¹⁷ The average monthly wage per employee post is calculated by the National Insurance Institute based on all employee posts for which employers reported wages to the National Insurance Institute in each month. Therefore, the simulation included all respondents in the monthly Labor Force Surveys, who were salaried employees and actually worked in each month during the relevant period. Since we do not know the number of employee posts occupied by respondents in each month, we assumed for the purpose of this calculation that each employee worked in only one job.

An estimation of the change in average wages in the business sector—not resulting from a change in the mix of salaried employees—shows a 2.6 percent increase in March–December, compared to the corresponding period in 2019. Due to data limitations, we may assume—based on this finding—that most of the increase in the average wage was a statistical outcome of the change in composition of employees, whereas the wages of those who continued to work apparently did not change significantly.

An industry-by-industry examination of the estimated change in average wages not resulting from the change in the mix of salaried employees shows that in some industries the wages of those who continued to work declined slightly. Moreover, the development of their wages is correlated with the degree of the crisis’s impact on each industry. In other words, the industries that experienced the biggest decrease in their estimated average wage are the ones with the greatest decline in the number of employees compared to 2019 (Figure 5.4).

This result shows that in industries that were subject to restrictions on their activity during the crisis, the adverse impact on demand for employees was more severe than the adverse impact on their supply. This finding further reinforces indications of employment pressures to reduce wages in industries that were harder hit by the crisis. This is also indicated by industry-specific changes in the unemployment to vacancy ratio in March–December 2020 compared to the corresponding period in 2019 (Table 5.4).

The simulation also shows a decline in the wages of those in continued to work in some industries. The development of their wage was correlated with the development of the number employees in the industry.

d. Employment patterns of various demographics

The pandemic, and the policy measures applied as a result, led to a sharp decline in employment rates among the prime working-age population in March–December, compared to the corresponding period in 2019. The unemployment rate soared, from 3.6 percent in 2019 to 15.3 percent in 2020, while the participation rate declined only moderately (from 81.1 percent to 79.7 percent).

Employees who left the labor force due to this crisis may be categorized into two groups: (1) those not participating in the labor force due to dismissal or closing of their work place since March 2020 (78 percent of the total decline in the participation rate due to the crisis); and (2) those not participating in the labor force due to other reasons, who wished to work now and did not look for work for COVID-19-related reasons (22 percent of the total decrease in the participation rate due to the crisis). These reasons include, inter alia, health considerations, lack of work matching the employee’s qualifications due to reduction in the number of jobs available in the market, and possibly also reasons having to do with expanded government support for the unemployed, which provide a disincentive to return to work.¹⁸

The adverse impact on activity had different effects on different demographics, depending on their individual and employment characteristics and on prior trends in employment and in labor market participation (Table 5.5).

¹⁸ Employees who have left the labor force for health reasons account for 0.2 percent of the total prime working-age population.

The decline in the employment rate for women was slightly more moderate than for men. For men, the decrease in employment was also associated with a more significant exit from the labor force, further to a slight moderation in their participation rate even prior to this crisis. Conversely, a higher rate of women were furloughed.

These developments reflect opposite gender-related developments in the various industries: While the decrease in employment among Jewish women (both *Haredi* (ultra-Orthodox) and others) was sharper than among Jewish men, in Arab society, employment rates declined more sharply for men, with their participation rate also declining sharply, by 6 percentage points.

While the crisis did exacerbate previous trends in work patterns in the Arab population, the decrease in their labor force participation rate was partially due to crisis-specific attributes. Even prior to this crisis, the participation rates for the Arab population decreased, primarily among young men.¹⁹ This trend may be partially explained by the higher number of workers from the Palestinian Authority working in Israel, mostly in construction, which started prior to this crisis.²⁰ Therefore, the more pronounced trend may have been caused by different employment conditions of these two populations during the crisis, and particularly by the employment conditions of Palestinian workers after the first lockdown, with some of their employers being allowed to have their employees stay over in Israel.²¹

An analysis by age shows a more pronounced impact on the employment of younger employees. During crisis periods, there is often a sharper decrease in employment among younger employees, as shown by the rates of decline in employment in the two previous crises.²²

¹⁹ Participation rates for Arab men aged 20–24 decreased by 6 percent in 2019 and by 18 percent in 2020.

²⁰ S. Cohen-Goldner (2019) indicates interchangeability between Palestinian workers and Israeli Arab workers in the construction industry. According to this article, between 1998 and 2006 about 24 percent of Israeli Arab workers were in the construction sector, compared to less than 7 percent of Jewish men. (S. Cohen-Goldner (2019). “Effect of foreign workers on employment and wages of Israeli workers”. Policy Paper 2019.05, Aharon Institute for Economic Policy). Revised 2018 data from the Central Bureau of Statistics research room at the Bank of Israel, show that the percentage of men working in the construction industry among Israeli Arabs was 23.3 percent, and among Israeli Jews the percentage was 5.9 percent, while among those aged 20–24, the percentages were 30.3 percent and 2.7 percent, respectively.

²¹ According to research by H. Etke (2020), the decrease in number of employee posts for Israeli employees in the construction industries during the first lockdown was sharper than among Palestinians. Moreover, given the mandatory requirement for employers to provide sleeping quarters for their Palestinian employees during the first lockdown, the total number of permits that allow employees to sleep in Israel increased, and many employees continued to sleep in Israel even after the lockdown (PCPO Survey of Palestinian workers). Therefore, after employment of Palestinians returned to its precrisis level in September, the employment of Israelis in the construction industry remained lower than in the precrisis period. (H. Etke (2020), “Employment of Palestinians in the Israeli Economy during the COVID-19 Crisis”, Discussion paper, Bank of Israel).

²² At the peak of the Second Intifada, the unemployment rate among those aged 25–34 increased from 9.3 percent to 10.8 percent, while during the Global Financial Crisis, the rate increased from 5.8 percent to 8 percent. By comparison, the unemployment rate among those aged 55–65 increased from 5.5 percent to 6 percent and from 4.3 percent to 5.1 percent, respectively.

The crisis exacerbated the downward trend in employment and participation rates among the Arab population, in particular for Arab men.

Table 5.5
Employment rates by population group, March–December, 2019 and 2020

(percent, original data, prime working ages)

	2019 employment rate	2020 employment rate	Change from 2019 to 2020 ^a
Total population	78.2	67.6	-10.7
Men	82.4	71.5	-11.0
Women	74.1	63.8	-10.4
Non-Haredi Jews	85.4	74.7	-10.7
<i>of which: Men</i>	87.4	77.7	-9.7
Women	83.4	71.8	-11.6
Haredim	64.3	54.3	-10.0
<i>of which: Men</i>	52.3	43.6	-8.7
Women	76.4	65.3	-11.1
Arabs	56.3	45.6	-10.7
<i>of which: Men</i>	76.0	60.0	-16.0
Women	36.8	31.1	-5.7
Less than 12 years of schooling	69.1	56.7	-12.4
13–14 years of schooling	81.2	68.8	-12.4
15 or more years of schooling	85.3	76.3	-9.0
Aged 25–34	77.9	64.7	-13.2
Aged 35–54	82.4	72.2	-10.2
Aged 55–64	68.2	59.9	-8.3

^a The change is measured in percentage points.

SOURCE: Central Bureau of Statistics Labor Force Survey data and Bank of Israel Research Department analysis.

However, during the current crisis, the negative impact on employment rates among the older population (aged 55–65) compared to the younger population (aged 25–34) was sharper than in previous crises. This may be due to the fact that people in the older age group are more prone to risk in case of COVID-19 infection, but most of the employment impact caused by the crisis was on the younger, not older, employees.

In general, the older population has a lower tendency to leave the work place even under normal conditions²³, presumably due to their wish to retain retirement rights and due to the overall challenges in finding new employment at older ages. Furthermore, employers may also tend to retain older employees during a crisis, due to their longstanding acquaintance or for their professional experience. The fact that the crisis resulted in a large number of layoffs among older employees may cause challenges to their rehiring after the crisis.

Social distancing restrictions had more of an impact on some occupations and industries than others. It is therefore important to understand the extent to which employment attributes (occupation and industry) affect the degree of impact on the employment of these populations. In order to isolate the impact of these causes, we used regressions to test how the likelihood of being employed was affected by the

While the impact on the employment rates of older employees was less than among younger employees, the intensity of the impact on older employees relative to younger ones was greater than in previous crises.

²³ Older employees tend to hold the same jobs for longer, and their likelihood of finding a new job is lower. This is shown by comparing the employment attributes of employees aged 60–64 to those of employees aged 55–59 in OECD countries in 2008, 2012, 2016 and 2018. OECD (2019), “Working Better with Age”, *Ageing and Employment Policies*, OECD Publishing.

Controlling for employment characteristics, there was a sharper drop in women's probability of working than in that of men, relative to the corresponding period in 2019.

Similar findings were obtained with regard to Arabs' likelihood of working. The decrease in Arabs' likelihood of working, controlling for employment characteristics, was sharper than among Jews relative to the corresponding period in 2019. The same goes for the *Haredi* population compared to non-*Haredi* Jews.

socioeconomic and employment attributes of employees during the crisis, compared to the corresponding period last year.²⁴

The regression results show that for some populations, the effect obtained when including control variables by industry and occupation are contrary to the effect obtained when excluding these variables. Thus, the occupational compositions of the populations affect the change in employment rates. In particular, we found that when control variables are included, women's probability of working is significantly lower than that of men compared to the corresponding period last year (by 2.5 percentage points). We saw similar findings with regard to Arabs' probability of working, which was significantly lower than that of Jews compared to the corresponding period in 2019 (2.6 percentage points), and with regard to the *Haredi* population compared to non-*Haredi* Jews (3.2 percentage points).²⁵

In other words, these findings demonstrate that the occupational composition of populations affects their likelihood of working. While there was slightly less impact to the overall employment rate for women than there was for men compared to the corresponding period in 2019 (Table 5.5), a comparison of women and men with the same occupation and in the same industry shows that the decrease in women's likelihood of working was greater than for men compared to the corresponding period in 2019. As noted, the findings on the probability of working are similar when comparing Arabs to Jews, and when comparing *Haredi* and non-*Haredi* Jews.

In all other demographics, the employment control variables do not influence the direction of effects described in Table 5.5. The decrease in likelihood of working compared to 2019 was larger among demographics with lower education and among young people, compared to better educated and older demographics.²⁶

²⁴ Estimates prepared for the entire working-age population (Table Appendix 5.1). The dependent variable is the likelihood of being employed, and the explanatory variables are the socioeconomic attributes of employees and the interaction between those variables and a dummy variable for 2020. The regressions included, as control variables, dummy variables for each month, and interaction variables between 2020 and the dummy variables for the industry, the occupation, and the dummy variable assigned the value '1' if the employee was a salaried employee at his current or last occupation. The observations included in the regression (weighted by their weighting in the population) included all respondents in the working-age population, based on Labor Force Surveys in March–December 2020 and in 2019.

²⁵ Another estimate was calculated, also including the interaction variables between gender and the Arab and *Haredi* segments (together with employment control variables by industry and occupation). This regression shows that the likelihood of working among women is significantly lower than among men compared to the corresponding period last year, only in the non-*Haredi* Jewish segment. In both the Arab and *Haredi* segments, the likelihood of working among women is significantly higher than among men compared to the corresponding period last year.

²⁶ The difference in the likelihood of working compared to 2019 among those aged 25–34 was 0.8 percentage points smaller than among those aged 35–54, while the difference in likelihood of working among those with 12–15 years of education was higher than among those with fewer than 12 years of education, and lower than among those with 15 years of education (by 1.02 and 1.04 percentage points, respectively).

e. Reintegration of the unemployed in the labor market

The furlough measures and extended eligibility for unemployment benefits significantly moderated the disconnect between employers and employees during the crisis, and contributed to employment flexibility. A significant percentage of employees who were furloughed during the lockdowns resumed working once the social distancing restrictions were lifted. However, the lack of commitment of the (narrowly defined) unemployed to their previous employers may improve the likelihood of finding an alternative job, especially in those industries where activity was restricted for a long period of time rather than only during the actual lockdowns. An examination of the employment patterns of the “COVID-19 Absentees” and the (narrowly defined) unemployed may shed light on the likelihood of their rejoining the work force as the health crisis ends and social distancing restrictions are lifted.

First, we shall test how employment patterns during the crisis (March–December 2020) changed compared to the corresponding period last year (Table 5.6). In other words, we compare the probability of the employed, unemployed, and labor force nonparticipants changing their employment status during the crisis (March–December 2020) compared to the corresponding period last year. This test is conducted by

Table 5.6

Matrix of transitions between labor force characteristics, March–December, 2019 and 2020

(percent, original data, prime working ages)

Period		Employed	Unemployed	Nonparticipant
Employment rate	March–December 2019	97.2	29.6	7.1
Unemployment rate		0.9	44.4	4.4
Rate of nonparticipants		2.0	26.0	88.6
Employment rate	March–December 2020	92.7	47.2	7.8
Unemployment rate		5.0	40.9	6.8
Rate of nonparticipants		2.2	11.9	85.3

Note: The table shows the probability of an employed person, an unemployed person, or a nonparticipant in the labor force changing his or her employment status four months after the first survey round during the crisis period (March–December 2020) compared with the corresponding period in the previous year. Column 1 shows the rate of those employed four months after the first survey round among those employed during the first survey round (first row), the rate of those unemployed four months after the first survey round among those employed during the first survey round (second row), and the rate of nonparticipants four months after the first survey round among those employed in the first survey round (third row). Column 2 shows the same rates among those who were unemployed during the first survey round, and Column 3 shows the same rates among those who did not participate in the labor force during the first survey round. The upper part of the table relates the period between March and December 2019, while the lower part relates to the period between March and December 2020.

SOURCE: Central Bureau of Statistics Labor Force Survey data and Bank of Israel Research Department analysis.

monitoring the most recent employment status of Labor Force Survey respondents four months after being sampled for the first time.²⁷

An examination of the likelihood of entering employment during the crisis (March–December) shows significant differences in the probability of the unemployed and their probability in the corresponding period in 2019. In particular, due to the large number of “COVID-19 Absentees” among those, the probability of the unemployed to resume working four months later during the crisis was higher than in the corresponding period last year, and their probability of leaving the labor force was lower. At the same time, the probability of the employed remaining employed decreased only slightly, and the probability of nonparticipants rejoining the labor force remained stable compared to the corresponding period last year.

Therefore, we shall focus on the unemployed, whose likelihood of finding employment again changed significantly compared to the previous year, and we shall test the rates of reemployment of the component groups thereof, i.e., the “COVID-19 Absentees” group and the (narrowly defined) unemployed group. In order to test reemployment of the “COVID-19 Absentees” and the (narrowly defined) unemployed, compared to the unemployed in the corresponding period last year, we shall consider the differences between these populations regarding reemployment patterns and the duration of their unemployment/absence.

The first part of Table 5.7 shows the reemployment rates of the “COVID-19 Absentees” group and the (narrowly defined) unemployed, compared to the reemployment rates of the unemployed in the previous year. The reemployment rates were tested over different time periods—initially after four months during the entire crisis period compared to the corresponding period last year, similar to what is presented in Table 5.6, and thereafter in March only for the short term and for the long term, i.e., after four months (in June) and after eight months (in December).

The second part of Table 5.7 presents the duration of absence/unemployment (percentage of those absent/unemployed for longer than 27 weeks out of the total number of absent/unemployed) for those groups over different time periods. First we present the duration of absence/unemployment across the entire crisis period compared to the corresponding period last year, and we then present other time periods—duration of absence/unemployment at the start of the period (in March) and at the end of the period (in December).

The high volatility in the number of “COVID-19 Absentees” compared to the number of (narrowly defined) unemployed, due to changes in social distancing directives, shows that “COVID-19 Absentees” have a tighter attachment to the labor market (Figure 5.2). This finding is supported by data in Table 5.7 (top row in first part of the table), showing that the reemployment rate of “COVID-19 Absentees” in the

“COVID-19 Absentees” were re-employed during the crisis at higher rates than other unemployed persons. However, re-employment rates for other unemployed persons were lower than for the unemployed in the corresponding period last year.

²⁷ We test a four-month period because the panel for Labor Force Surveys samples respondents during four consecutive months. After this period we have an eight-month pause, after which the same respondents are resampled during the subsequent four months. If a respondent does not participate in all of the surveys, their employment status is determined by their most recent status when participating in the survey.

March–December period was higher than for the (narrowly defined) unemployed, and the reemployment rate of the (narrowly defined) unemployed was lower than for the unemployed in the corresponding period last year. This same conclusion is also drawn from data for duration of absence/unemployment in the March–December period (the first row in the second part of the table).²⁸

However, the differences in the reemployment rates of the various defined groups of unemployed persons, and in the duration of their absence/unemployment may not necessarily indicate the impact of the employment status (unemployed/“COVID-19 Absentee”) on the (tighter or looser) connection to the labor market, because these groups differ in their employment and individual attributes. These differences may therefore explain, to a significant degree, the reemployment patterns and duration of absence/unemployment of the groups of unemployed persons, rather than their employment status.

Table 5.7
Rate of return to work and duration of absence/unemployment in various time periods, among the unemployed, 2019 and 2020

		(percent, original data, prime working ages)		
		2019	2020	
	Period	Unemployed	Unemployed (narrow definition)	COVID-19 absentees
Rate of return to work	March–December	30	20	56
	March - short term	29	15	52
	March - long term	63	24	77
Rate of those absent and/or unemployed more than 27 weeks	March–December	31	37	7
	March	26	30	0
	December	36	51	45

Notes: The first part of the table shows the return-to-work rates four months after the first sample, among those unemployed in 2019 (Column 1), and those unemployed (in the narrow definition) (Column 2) and "COVID-19 absentees" (Column 3) in 2020. The first row relates to the return-to-work rates four months later among respondents between March and December. The second row relates to the short-term return-to-work rates among respondents in March, i.e. four months after the survey (meaning the return-to-work rates in June). The third row relates to the long-term return-to-work rates among respondents in March, i.e. ten months after the survey (meaning the return-to-work rates in December). The second part of the table shows the rate of those absent and/or unemployed more than 27 weeks as a share of all absentees and/or unemployed, among those unemployed in the broad definition in 2019 (Column 1), and among those unemployed in the narrow definition (Column 2) and COVID-19 absentees (Column 3) in 2020. The first row relates to the period between March and December, the second row relates only to March, and the third row relates only to December.

SOURCE: Central Bureau of Statistics Labor Force Survey data and Bank of Israel Research Department analysis.

²⁸ The percentage of those absent / unemployed for longer than 27 weeks out of the total number of absent/unemployed throughout the period among those unemployed in the corresponding period last year was higher than among the “COVID-19 Absentees” and lower than among the (narrowly defined) unemployed this year.

In order to eliminate the effect of different socioeconomic and employment attributes (industry and occupation) of the groups, we estimate separate regressions to test the differences in their probability of reemployment on the one hand, and of being unemployed for longer than 27 weeks on the other hand. These regressions allow us to compare the probability of the (narrowly defined) unemployed and of the “COVID-19 Absentees” being reemployed within four months (or alternatively, to be absent/unemployed for longer than 27 weeks) to the likelihood of the unemployed in the corresponding period last year, provided that they have the same socioeconomic and employment attributes and were sampled within the same month.²⁹ It is important to note that this comparison does not allow for elimination of all unobserved attributes that may have affected their categorization in each of the unemployment groups in the first place.

The findings of our regression support the conclusion that the “COVID-19 Absentees” have a stronger attachment to the labor market than the (narrowly defined) unemployed, even with all other observed attributes being constant. In similar fashion, the (narrowly defined) unemployed are less likely to be reemployed than the unemployed of 2019.

We see similar findings from an analysis of the likelihood of being unemployed/absent for longer than 27 weeks.³⁰ Therefore, including the control variables for industry and occupation only decreased the difference between these likelihoods between the various groups of unemployed.

It may be that one explanation for the attachment of “COVID-19 Absentees” to the labor market is the higher employment volatility for this group around the start and end dates of the lockdowns, compared to the (narrowly defined) unemployed. In order to eliminate this effect as much as possible, we conducted a further comparison of these variables between the start and end of the period, to test their variability over time.

²⁹ Separate estimates were prepared as for the likelihood of being reemployed and the likelihood of being unemployed for longer than 27 weeks (Appendix Table 5.2); the independent variables are dummy variables for COVID-19 Absentee, (narrowly defined) unemployed and unemployed in 2019 (the baseline group). The regressions included, as control variables, dummy variables for each month, and interaction variables between 2020 and the individual attributes, dummy variables for the industry and occupation, and the dummy variable assigned the value ‘1’ if the employee was a salaried employee at his current or last occupation. The observations included in the regression (weighted by their weighting in the population) included all those surveyed who are unemployed and in the working-age population, based on labor force surveys in March–December 2020 and in 2019.

³⁰ The likelihood of the unemployed being reemployed in 2019 is significantly higher than the likelihood of the (narrowly defined) unemployed being reemployed in 2020 (by 11.8 percentage points) and is significantly lower than the likelihood of “COVID-19 Absentees” being reemployed (by 15.7 percentage points). Similarly, we found that those unemployed in 2019 were significantly less likely to be unemployed for longer than 27 weeks than the unemployed in 2020 (by 8.4 percentage points) and more likely than “COVID-19 Absentees” (by 15.7 percentage points).

An examination of the changes over time shows that the disconnect from employment was longer than in 2019, and that the likelihood of reemployment of the “COVID-19 Absentees” and the (narrowly defined) unemployed converged during 2020. Table 5.7 shows the reemployment rates in March for the short range (after four months) and for the long range (after nine months). This table shows that in 2019, the rate of unemployed who were reemployed after four months was nearly doubled after nine months. In 2020, the increase in the reemployment rate was more moderate for both groups of unemployed. Comparing the duration of absence/unemployment of the groups of unemployed between March and December of 2020, shows convergence of the absence (unemployment) durations over time (presented in the bottom two rows of Table 5.7). In particular, the percentage of “COVID-19 Absentees” who remained unemployed for longer than 27 weeks out of all “COVID-19 Absentees” in December was 45 percent. This is similar to this percentage for the (narrowly defined) unemployed—at 51 percent. However, in December 2019 only 36 percent of all unemployed persons were unemployed for longer than 27 weeks.

In summary, “COVID-19 Absentees” in March 2020 were far more likely to be reemployed within a short time than the unemployed in March 2019. However, as time went on during the year, the likelihood of “COVID-19 Absentees” being reemployed decreased significantly, and the gap between “COVID-19 Absentees” and the other unemployed in March 2020 decreased. This finding may indicate that as the furlough period grows longer, those employees on furlough increasingly resemble the “regular” unemployed in terms of their position in the labor market. However, it is important to remember that a significant portion of “COVID-19 Absentees” in March 2020 were employed in industries whose operations were also restricted in December, so still being out of work may not necessarily indicate the likelihood of their reemployment once these industries have been reopened.

Beyond the individual attributes, there is uncertainty with regard to the post-crisis survivability of businesses and the capacity of those businesses that would survive the crisis to reemploy all of their furloughed employees. Other than that, a long absence from the labor market may have negative long-term implications. It may reduce the motivation of the unemployed to keep searching for a job, erode their personal wealth, and reduce their future productivity. Employers are also expected to have less motivation to hire unemployed people who have been loosely connected to the labor market for a long time. Therefore, frictional unemployment may increase (Miyamoto and Suphaphiphat, 2020).³¹

The disconnect from employment was longer than in 2019, and the likelihood of re-employment of the “COVID-19 Absentees” drew closer to that of other unemployed persons during 2020.

Long absence from the labor market may have long-term negative implications and may increase frictional unemployment.

³¹ H. Miyamoto and N. Suphaphiphat (2020). “Mitigating Long-term Unemployment in Europe”, IMF Working Paper No. 20/168.

Appendix Table 5.a.1
Correlation between the probability of being employed and socioeconomic characteristics

	Probability of being employed	
Dummy variable for 2020	-0.122*** (0.00458)	-0.111*** (0.0110)
Dummy variable for woman	-0.0883*** (0.00249)	-0.0256*** (0.00249)
Dummy variable for aged 25–34	-0.0578*** (0.00350)	-0.0447*** (0.00307)
Dummy variable for aged 54–65	-0.119*** (0.00289)	-0.0308*** (0.00260)
Dummy variable for Arab	-0.264*** (0.00333)	-0.0370*** (0.00334)
Dummy variable for <i>Haredi</i>	-0.240*** (0.00469)	-0.0226*** (0.00453)
Dummy variable for at least 12 years of schooling	-0.0945*** (0.00343)	-0.00438 (0.00310)
Dummy variable for more than 15 years of schooling	0.00809** (0.00332)	0.00493 (0.00302)
Dummy variable for woman x dummy variable for 2020	0.00329 (0.00351)	-0.0256*** (0.00350)
Dummy variable for aged 25–34 x dummy variable for 2020	-0.0388*** (0.00494)	-0.00782* (0.00434)
Dummy variable for aged 54–65 x dummy variable for 2020	0.0247*** (0.00407)	0.00463 (0.00364)
Dummy variable for Arab x dummy variable for 2020	0.0136*** (0.00469)	-0.0259*** (0.00469)
Dummy variable for <i>Haredi</i> x dummy variable for 2020	0.00430 (0.00660)	-0.0326*** (0.00633)
Dummy variable for at least 12 years of schooling x dummy variable for 2020	-0.00893* (0.00482)	-0.0104** (0.00435)
Dummy variable for more than 15 years of schooling x dummy variable for 2020	0.0386*** (0.00467)	0.0102** (0.00423)
Control for employment characteristics	X	V
Number of observations (not weighted)	190,927	190,927

Notes: The table shows the probabilities of being employed among the general prime working age population. The explanatory variables are the socioeconomic characteristics of employees and the interaction between them and the dummy variable for 2020 and for the month. Column 2 includes employment control variables: interaction variables between 2020 and the dummy variables for industry, occupation, and a dummy variable that obtains the value of 1 if the employee was a salaried employee at his/her most recent or current job. The observations included in the regression (weighted by size in the population) included all respondents in the prime working ages in the Labor Force Surveys between March and December 2019 and 2020. Standard errors are clustered by industry and reported in parentheses.

SOURCE: Central Bureau of Statistics Labor Force Survey data and Research Department analysis.

Appendix Table 5.a.2**Probability of returning to work and of being absent or unemployed for more than 27 weeks, among unemployment groups (broad definition)**

	Probability of returning to work	Probability of being absent or unemployed for more than 27 weeks
Dummy variable for unemployed (narrow definition) in 2020	-0.118* (0.0674)	0.0836** (0.0386)
Dummy variable for absent due to COVID-19-related reasons in 2020	0.157** (0.0678)	-0.157*** (0.0387)
Dummy variable for woman	-0.109*** (0.0274)	0.0742*** (0.0154)
Dummy variable for aged 25–34	0.054* (0.0307)	-0.0425** (0.0172)
Dummy variable for aged 54–65	-0.00392 (0.0313)	0.115*** (0.0179)
Dummy variable for Arab	-0.0393 (0.0446)	0.0316 (0.0267)
Dummy variable for <i>Haredi</i>	-0.034 (0.0467)	0.00618 (0.0268)
Dummy variable for at least 12 years of schooling	0.0264 (0.0332)	-0.0177 (0.0188)
Dummy variable for more than 15 years of schooling	0.326 (0.326)	0.0351* (0.0186)
Dummy variable for woman x dummy variable for 2020	0.0974*** (0.0299)	-0.0654*** (0.0168)
Dummy variable for aged 25–34 x dummy variable for 2020	-0.069** (0.0339)	0.0361* (0.0189)
Dummy variable for aged 54–65 x dummy variable for 2020	-0.0232 (0.0337)	-0.095*** (0.0192)
Dummy variable for Arab x dummy variable for 2020	-0.0386 (0.0477)	-0.0364 (0.0283)
Dummy variable for <i>Haredi</i> x dummy variable for 2020	0.0151 (0.0503)	0.00669 (0.0289)
Dummy variable for at least 12 years of schooling x dummy variable for 2020	-0.0167 (0.0359)	0.0277 (0.0203)
Dummy variable for more than 15 years of schooling x dummy variable for 2020	-0.0342 (0.0357)	-0.0321 (0.0204)
Control for employment characteristics	√	√
Number of observations (not weighted)	9205	14,537

Notes: The table shows the results of regressions from separate estimations for the probability of returning to work and for the probability of being unemployed for more than 27 weeks. The explanatory variables are the dummy variables for being absent due to COVID-19-related reasons, unemployed (narrow definition), and unemployed (broad definition) in 2019 (control group). The control variables in the regressions were dummy variables for each month, a dummy variable for 2020 and interaction variables between 2020 and the individual's characteristics, dummy variables for industry and for occupation, and a dummy variable that obtains the value 1 if the employee was a salaried employee at his most recent or current job. The observations included in the regression (weighted by size in the population) included all unemployed respondents (broad definition) in the prime working ages in the Labor Force Surveys between March and December 2019 and 2020. Standard errors are clustered by industry and reported in parentheses.

SOURCE: Central Bureau of Statistics Labor Force Survey data and Research Department analysis.

PART 2: POLICY MEASURES APPLIED TO THE LABOR MARKET IN ISRAEL³²

- In light of the significant decrease in demand for employees due to the health crisis, the government, immediately at the outset of the crisis, applied more flexible measures for payment of unemployment benefits to furloughed employees. This step was taken in order to preserve the employees' attachment to their employers and to facilitate the return to normal operations following the crisis.
- The government eased the eligibility criteria for receiving unemployment benefits, for both furloughed employees and the unemployed, increased the unemployment allowance and extended the eligibility period several times. As part of the "Safety Net" applied in late July, eligibility for an unemployment allowance, as well as all other approved relief and add-ons, was extended through June 2021 or until the unemployment rate in the economy would drop below 7.5 percent.
- Due to these measures, 79 percent of all new jobseekers who signed on with the Israeli Employment Service in March–December did so due to furlough, rather than dismissal or resignation.
- Like Israel, many other developed countries adapted existing assistance measures at the outset of the crisis for employees facing lower demand, by making eligibility criteria for assistance more flexible, improving the terms, and extending eligibility periods.
- Unlike in Israel, employee assistance policies in most developed countries were based on optional continued partial employment, with the employer paying the wages and the government contributing full or partial payment for the reduced work hours.
- Despite the different mechanisms, the decrease in total work hours in Israel was not excessive compared to other countries.

a. Support for employees whose employment was dismissed

The COVID-19 crisis made it necessary to take rapid measures in support of employees.

The sharp decline in economic activity at the outset of the crisis necessitated the application of rapid measures, which were designed to achieve multiple objectives: 1. Avoid significant impact to employees' income, both for social considerations and in order to moderate the decline in private consumption that would further exacerbate the crisis; 2. Protect business survivability in order to allow businesses to resume operations once the social distancing restrictions were lifted, thereby avoiding

³² This section is focused on policy measures designed to directly support employment or provide assistance to employees impacted during the crisis. The labor market was also, naturally, affected by many other policy measures applied by the government, including decisions as to which work places would be allowed to operate during the different stages of the pandemic, and to what extent. For more information about other assistance measures for businesses and households, see Chapter 6.

a prolonged adverse impact to GDP and to employment; 3. Help cope with the pandemic by reducing the incentive for employees to attend their place of work and for employers to pressure employees into attending; and 4. Maintain the attachment between employees and their employers at the outset of the crisis, based on the understanding that the economic shock is not due to structural economic issues and would be of limited duration, after which the industries whose activity was restricted would resume operations (see discussion in Box 2.1 in this report).

The need to act quickly with limited information forced the government to rely on the adaptation of existing institutional measures. Therefore, the government immediately allowed for more flexible payment of unemployment benefits to furloughed employees³³, while easing the eligibility criteria for unemployment benefits and increasing the benefits for specific populations—both for those placed on furlough and for the unemployed³⁴ (Table 5.8). This move had multiple advantages: Employers saved temporarily on payroll while their business was fully or almost fully shut down, while retaining their connection with employees whom they had already found to be suitable for the work place. This arrangement reduced the pressure on employers and employees to attend the work place, thereby reducing crowding and transmission of the virus. It also saved on expenses associated with dismissal (such as severance pay) and the expenses of searching for and training new employees. Thus, this arrangement placed the economy at a convenient starting point to resume operations as the lockdowns were lifted, which indeed was reflected in a rapid resumption of economic activity and employment when lockdowns were lifted. The advantages of this arrangement moved employers and employees to overwhelmingly choose it: 79 percent of all new jobseekers who signed on with the Israeli Employment Service in March–December did so due to furlough rather than dismissal or resignation.³⁵

Along with these advantages, the arrangement had several disadvantages: At first, it was only implemented for a limited period, so that employees' uncertainty about their income should the crisis be prolonged led to concerns about their income when their eligibility would expire as well as a potential adverse impact to consumption, especially since the eligibility period for unemployment benefits in Israel is short by international comparison.³⁶ The inability to reemploy employees on a part-time basis once the restrictions have been lifted, without the employees losing their full

The furlough arrangement had multiple economic advantages for the crisis period.

The disadvantages of the furlough arrangement are partly due to its rigidity.

³³ The increased flexibility included waiving the requirement for employers to first fully pay for employees' paid leave and other rights. This allowed employers to immediately reduce their payroll cost, thereby avoiding liquidity issues when the business could not operate.

³⁴ The cost of furlough, based on eligibility criteria for unemployment benefits in effect prior to the crisis, was NIS 10.5 billion, and measures to extend eligibility added another NIS 9.5 billion, such that the total cost of unemployment benefits in 2020 was NIS 20 billion (1.5 percent of GDP) higher than before the crisis.

³⁵ Furloughed employees are entitled to resign and be deemed to have been dismissed.

³⁶ The maximum eligibility period for unemployment pay in Israel—175 days—is one of the shortest in the OECD. The median for member countries is 12 months, with only Hungary, Slovakia, the Czech Republic, the UK, and the US having shorter maximum eligibility periods (prior to the crisis). Many countries, including the US and the UK, extended the maximum eligibility period at the very outset of the crisis.

eligibility for unemployment benefits, and the risk for employees whereby, should they be reemployed at partial wage, this wage would form the basis for calculating their unemployment allowance in case of any additional furlough, reduced the flexibility of employers and employees, resulting in an incentive to reemploy fewer employees on a full-time basis, rather than sharing the work among more employees. Furthermore, employees who “returned too early” from furlough lost their eligibility for the unemployment allowance for the entire period in which they were absent from work.³⁷ Thus, as the disconnect from the work place grew longer and with only partial recovery in demand in the economy, the number of employees who have been unemployed for a long time grew, and their connection with employers was eroded. This is in contrast with models applied in other countries (see below), which allowed for partial employment along with receiving partial unemployment benefits.

Later on during the crisis, multiple measures were applied to significantly adapt the furlough arrangement.

From March to June, the eligibility period for unemployment benefits was gradually extended—for a further 1.5 months at a time—for those whose eligibility had run out. Only in late July, as part of the “2020–21 Economic Safety Net” program, was a decision made to extend eligibility for unemployment benefits, as well as all other approved relief and add-ons, through June 2021 or until the unemployment rate in the economy would drop below 7.5 percent (Table 5.8). In July, additional relief was also provided when determining eligibility for unemployment benefits and calculating the allowance, with full unemployment pay allowed while attending professional training by the Israeli Employment Service (compared to the normal 30 percent reduction in unemployment pay).

The “Flexible return from furlough” arrangement added important, albeit late, flexibility to the labor market.

The replacement ratio of unemployment allowance and wages in Israel is not low by international comparison³⁸, but unemployment allowance does not fully replace the lost wages. Therefore, as the crisis persisted, the cumulative income impact to those unemployed for a long period grew more significant. After the second lockdown caused many employees who had already been placed on furlough during the year to once again be unemployed, the government resolved in November to provide a partial solution for this by means of a nonrecurring grant payable to those who received an unemployment allowance (or adaptation grant for those aged 67 and over) for at least 100 days during the crisis.³⁹ In order to promote reemployment and to address the disincentive inherent in unemployment benefits, a “flexible return from furlough” arrangement was added. This tool is intended for recipients of unemployment benefits who were reemployed at a part-time position during the COVID-19 crisis, including

³⁷ Eligibility for unemployment pay was contingent on being on furlough for 30 days or longer. This period was shortened to 14 days only in August.

³⁸ For the wage levels and individual attributes applicable to most employees in Israel, the unemployment allowance paid in Israel is higher than the OECD median. In Israel, the employees receiving relatively low unemployment allowances are mostly those aged 28 and under, particularly those with 1 or 2 children.

³⁹ The bonus was also paid to unemployed persons who were reemployed and to recipients of unemployment benefits who work in part-time positions.

<https://www.btl.gov.il/Corona/Pages/MaanakAvtCont.aspx>

with the employer who had placed them on furlough, allowing for payment of the unemployment allowance for the portion of their wages that was reduced relative to the employees' wages immediately prior to the crisis (subject to caps).⁴⁰ This measure added significant flexibility to the labor market, but was implemented late (after the second lockdown) and was subject to stringent conditions which, while they reduced concern about abuse of this measure, did so at the cost of reducing its efficacy.

Table 5.8
Policy measures and support for the labor market

Start of first lockdown	March 16, 2020
Agreements between labor unions and employers on avoiding dismissals in the short term, special grant for those dismissed. Shortening of the qualification period prior to unemployment benefit eligibility from 12 months' work in the 18 months preceding the start of unemployment to 6 months. ¹ Clarification that employees going on furlough for 30 days or longer would be eligible for unemployment allowances, without requiring them to first use up their accrued paid leave. Online enrollment with the Israeli Employment Service to confirm eligibility for unemployment benefits, without requiring physical attendance.	March 16, 2020
Extended eligibility for unemployment benefits through April, for those whose eligibility period has run out. ²	March 27, 2020
Monthly adaptation grant to those aged 67 or over who were furloughed or dismissed (in addition to old age pension). ³	March 30, 2020
Start of emergence from first lockdown	April 19, 2020
Extension of special adaptation grant to those aged 67 or over through May (up to NIS 4,000). ⁴	April 24, 2020
Plan to encourage reemployment, valued at NIS 6 billion. Includes a one-time grant to businesses for each employee they reemployed in April–September after being unemployed or on furlough. ⁵	May 8, 2020
Relief in eligibility for unemployment benefits—shorter qualification period and longer eligibility period—extended through May. ⁶	May 9, 2020
Relief in eligibility for unemployment benefits—shorter qualification period and longer eligibility period—extended through August 15. ⁶	June 28, 2020

⁴⁰ The bonus was paid to persons who were unemployed for 75 consecutive days prior to November 1, who received unemployment benefits for 75 days since March 1 (even if not consecutive), and who started work by December 31.

1. Payment of multiple allowances—to those eligible for unemployment benefits as well as old age pension, disability pension, income insurance, or child support. Revised retroactively since March, effective through August 15. 2. Special adaptation grant to those aged 67 and over who lost their employment due to the COVID-19 crisis, extended through August 15.⁷	June 30, 2020
Safety net for those unemployed or salaried employees placed on furlough, extended through June 2021 or until the unemployment rate would drop below 7.5 percent^{8,9} including payment of multiple benefits through June 2021. Additionally: 1. Those who were eligible for unemployment benefits from January and February were added to the Safety Net (starting in July 2020). 2. Shortening of furlough duration for eligibility for unemployment benefits to 14 days.¹⁰ 3. Elimination of 5-day waiting period between unemployment periods, except for when first going on unemployment during the crisis.¹¹	July 9, 2020
The Economic Assistance Plan Act was approved¹², whereby: 1. Those undergoing professional training would be eligible for full unemployment benefits, rather than 70 percent thereof. 2. Those aged 28 or younger with a child would receive a full, rather than reduced, unemployment allowance. 3. Changed the calculation of unemployment benefits so that the amount would be determined based on the higher wage received after first going on furlough, and would not be reduced after a specified period, as is the case normally, or when the employee returns to work at a lower pay for a certain period.	July 29, 2020
Start of second lockdown	September 18, 2020
Expanded the Economic Safety Net.¹³ 1. More flexible eligibility rules for employment encouragement grant.¹⁴ 2. Employee retention plan, payable in one lump sum.¹⁵ 3. Postponed reduction in unemployment benefits.¹⁶	September 22, 2020
Increase of Earned Income Tax Credit (EITC) by 62 percent for employees eligible for one month or more in the period April–December 2020. In addition, employees would receive an advanced EITC payment of 25 percent of the grant (not less than NIS 1,000), which would not be reimbursable should it emerge later on that the employee was not eligible for the payment.	September 29, 2020
Start of emergence from second lockdown	October 18, 2020
Nonrecurring payment to those who received unemployment benefits or adaptation grants for an extended period (100 days or longer) during the crisis.^{17,18}	November 11, 2020
“Flexible return from furlough to employment”¹⁹ grant for unemployment allowance recipients who returned to work on a part-time basis by the end of December, including those who returned to the employer who had placed them on furlough.²⁰	November 15, 2020
Extended eligibility for the “Flexible return from furlough to employment” grant, through February 2021.	November 30, 2020
Start of third lockdown	December 27, 2020

¹ https://www.gov.il/he/departments/news/press_16032020_b

² https://www.gov.il/he/departments/news/press_27032020

³ Those aged 67 or over are not eligible for unemployment benefits because they are eligible for an old age pension. The grant was paid for March (up to NIS 2,000) and April (up to NIS 4,000).

⁴ https://www.gov.il/he/departments/news/press_24042020_b

⁵ The grant was paid for each qualifying employee above the employee headcount in May, for each month in which the employee was employed in the June–September period. The employee must earn at least NIS 3,300 per month. Employers could elect an alternative track, whereby the grant was payable for employees recruited in July–October, under the same conditions.

⁶ https://www.gov.il/he/departments/news/press_09052020

⁷ https://www.gov.il/he/departments/news/press_11052020

⁸ https://www.gov.il/he/departments/news/press_30062020

⁸ The unemployment rate, as defined by law, includes the unemployed (narrowly defined unemployment) as well as those temporarily absent for COVID-19-related reasons.

⁹ Should the unemployment rate be between 7.5 and 10 percent, after 30 days the unemployment allowance would be reduced (for the unemployed and for those placed on furlough whose eligibility for unemployment benefits has expired) to 90 percent. Should the unemployment rate drop below 7.5 percent, the expanded eligibility for unemployment benefits would expire 30 days after the announcement date. National Insurance Institute, “Extending payment of unemployment benefits”, July 29, 2020.

¹⁰ <https://www.btl.gov.il/About/news/Pages/haraca-june-21.aspx>

¹¹ Compared to 30 days prior to the crisis and through July 31, 2020. Moreover, going on furlough is not contingent on using up the remaining paid leave.

¹² <https://www.btl.gov.il/benefits/Unemployment/Pages/pay.aspx>

¹³ <https://main.knesset.gov.il/Activity/Legislation/Laws/Pages/LawPrimary.aspx?t=lawlaws&st=lawlaws&lawitemid=2143895>

¹⁴ https://www.gov.il/en/departments/news/spoke_joint220920

¹⁵ Due to the second lockdown, a decision was made whereby those who worked in September for 15 days or more would not be excluded from the employees considered for grant calculation, even if dismissed or placed on furlough. The minimum wage for an employee to qualify for this bonus was reduced to NIS 2,500.

¹⁶ Nonrecurring grant for continued employment of employees in September and October. Employers are eligible for this grant if their revenue is up to NIS 400 million and if their revenue during the eligibility period declined by 25 percent or more compared to the corresponding period last year. The grant amount is NIS 5,000 multiplied by the number of qualifying employees, where the number of qualifying employees depends on the extent of impact on the business: the harder the impact on the business—the lower the percentage of employees above which the grant is payable for each additional employee (employment threshold). For impact levels of 80 percent and higher, the grant shall be payable for each employee above 40 percent of employees. For impact levels of 60–80 percent, the grant shall be payable for each employee above 55 percent of employees. For impact levels of 40–60 percent, the grant shall be payable for each employee above 70 percent of employees. For impact levels of 25–40 percent, the grant shall be payable for each employee above 80 percent of employees. The grant shall be paid through the Small Business Authority of the Ministry of Economy and Trade.

¹⁷ The decline threshold shall only be tested from October 16, 2020, thus delaying the reduction due to the low unemployment rate in September.

¹⁸ The grant is payable to the unemployed who were reemployed and to those who were not, provided that the eligibility period is in compliance with the eligibility conditions, and that the effective wage was lower than the average daily wage in the market. The 100 days of unemployment shall be counted from March 1, 2020 to October 31, 2020.

¹⁹ <https://www.btl.gov.il/Corona/Pages/MaanakAvtCont1122-4416.aspx>

¹⁹ The grant is for each day of employment, for up to 4 months, and makes up the prorated share of unemployment pay relative to the employees’ wages immediately prior to the crisis (subject to caps). Eligible persons are those unemployed for 75 consecutive days prior to November 1, who have received unemployment benefits for 75 days from March 1 (even if not consecutive) and who started work by December 31.

²⁰ The grant is for each day of employment, for up to 4 months, and complements the unemployment benefits up to the employees’ wages immediately prior to the crisis (subject to caps). Eligible persons are those unemployed for 75 consecutive days prior to November 1, who have received unemployment pay for 75 days from March 1 (even if not consecutive) and who started work by December 31.

b. Encouraging reemployment of employees

After the first lockdown, a decision was made to provide incentives for employers to re-employ employees by means of a bonus payment.

The re-employment grant provided a quick response to the need for re-employment after the lockdown, but had some prominent disadvantages.

Due to concern that the “safety net” would lessen the motivation of the unemployed to return to the labor market, it was stipulated that it would be discontinued once the unemployment rate would drop below 7.5 percent.

There was extensive use of furloughs during the first lockdown: Nearly 1 million employees, or 22 percent of the work force, were placed on furlough, while only 115,000 employees were dismissed or resigned.⁴¹ Some of these employees were reemployed when restrictions were lifted from mid-April, but the number of unemployed remained high, with 20 people who were unemployed or on furlough for each job vacancy in the market.^{42,43} In order to avoid a labor market equilibrium with relatively low employment—due to concerns about morbidity trends and due to the temporary nature of the arrangement and some of its features—a decision was made to provide employers with grant incentives to hire employees. The grant was paid to employers who hired employees in April–September⁴⁴, who met several conditions, including unemployment pay after the lockdown. The original announcement called for this reemployment grant to be valued at NIS 6 billion, but the plan as approved was more limited, so that actual expenditure was NIS 1.6 billion, which paid for the reemployment of 430,000 employees.

The grant approved in May provided a quick response for the need for reemployment after the lockdown, to avoid extended unemployment and to reduce payment of unemployment benefits. It had the disadvantage of compensation being based merely on the reemployment of employees who were unemployed or on furlough, regardless of the extent of impact on the business’s activity and the total number of employees. Thus, employers who avoided placing employees on furlough despite the impact of the crisis, who may not have been in a position to actually employ them in full-time positions, were hit twice: They bore the cost of employment during the lockdown, rather than having the State pay an unemployment allowance to their employees, and did not receive a grant for the reemployment of their employees, as employment was continued throughout the lockdown. The grant structure also hurt those employers who were quick to reemploy their employees after the lockdown, because those who re-employed their employees in April and May received a lower grant than those who waited until June.⁴⁵ Thus, the government gave employers the message that, in case of an additional morbidity wave and restrictions, the way to receive support is by placing employees on furlough, rather than make the effort to preserve those employees.

One of the concerns that arose due to the increased flexibility of furlough measures and criteria for eligibility for unemployment benefits, and extension of the eligibility

⁴¹ Including employees who entered “Other” as their reason for visiting the Employment Service.

⁴² Based on Labor Force Survey data – broadly defined unemployment.

⁴³ During the summer months, this ratio decreased to 9. Prior to the crisis, the runemployed to vacancy ratio in the economy was 1.5.

⁴⁴ The grant amount was NIS 1,875 per month for employees who earned at least NIS 3,300 per month, and it was paid for up to 4 months. Employers could choose between this scheme and an alternative one, whereby the grant was payable for employees recruited in July–October, under the same conditions. Eventually, 95 percent of grant recipients chose to receive it for June–September.

⁴⁵ NIS 875 per month for employees hired in April above the headcount in March, or hired in May above the headcount in April.

period for unemployment pay through June 2021, was that certainty among the unemployed with regard to continued payment of the unemployment allowance would reduce their incentive to look for alternative work, or even to return to their previous positions. This was especially the case in view of restrictions on the operation of the Israeli Employment Service during the crisis. Due to such concern, the government applied a mechanism to automatically decrease unemployment benefits in accordance with the unemployment rate (Table 5.8), and in late September it increased the Earned Income Tax Credit (EITC) (“negative income tax”) for 2020 by 62 percent to provide incentive for employment. It was further decided to immediately pay an advance on account of the 2020 EITC, which was scheduled to be paid only in the second half of 2021, and those eventually found to be ineligible to receive this grant would not be required to repay it.

In view of insights gained from the reemployment grant at the end of the first lockdown, and based on improved availability of information, the government resolved, upon entering the second lockdown, to act to reduce the number of employees placed on furlough, by means of an employee retention scheme of up to NIS 5,000. This grant was paid for each employee (above a certain threshold) who was continuously employed in September–October. Employers’ eligibility to receive this grant was based on the extent of impact to their revenue and the percentage of employees preserved during this period (for more details see Table 5.8). Total grants paid through February 2021 (in cash and by obligation) amounted to NIS 400 million, out of the original estimate of NIS 800 million.

In view of insights gained from the first lockdown, upon entering the second lockdown an employee preservation bonus was implemented.

c. Support model in other advanced economies

As in Israel, other countries also implemented programs to support the labor market. In order to analyze policy measures applied in Israel from an international perspective, we reviewed policy measures applied by 14 OECD member countries (Table 5.9).⁴⁶ The review shows that most of these countries implemented programs primarily designed to provide additional income to employees whose livelihoods were affected, without severing their connection with their employers. We also found that these programs were mostly based on extending or revising the support programs and safety nets that had existed in those countries prior to the current crisis, and extending/adapting them as the crisis continued to unfold. (In most countries, the initial assistance period was significantly longer than in Israel, where the program was initially only approved for several weeks at a time).

Most countries implemented programs to provide employees with income coverage without severing their ties with their employers.

⁴⁶ US, Australia, Italy, Germany, France, UK, Finland, Canada, Spain, Denmark, the Netherlands, Sweden, Poland, and the Czech Republic. The choice of countries was dictated by the availability of economic reports about these countries from the International Monetary Fund and from the OECD. In addition, we also reviewed data from other OECD member countries, but information about these was not available in the uniform format as it was for the selected countries.

The “German Model” makes up, through employers, the income of employees whose work hours have been reduced.

In all countries, the government’s contribution to support programs was increased relative to the precrisis period.

The furlough program implemented in Israel was different than policy measures applied by most countries, particularly Western European countries and Canada, which focused on making up employees’ income for those whose employment intensity was decreased, in whole or in part, through their employer. The most prominent of these plans is the long-standing Kurzarbeit program in Germany.⁴⁷ As such, this plan was referred to in Israel as the “German Model”. This model supports employee preservation in periods when their income is affected due to temporary decline in demand. Under this program in Germany, employers with a reduced need for labor input may reduce their employees’ work hours, paying their full wages for actual work hours and 60–87 percent of the employee’s wage for work hours reduced from their precrisis scope of employment. The payment for those reduced hours was fully covered by the State (including a waiver of social security pay for these hours), so that employers had no additional cost beyond payment for the actual work hours they required.⁴⁸

Similar measures were implemented in France (“Short Time Work”), in the UK (“Coronavirus Job Retention Scheme”) as well as in Italy, Spain, Canada, Sweden and the Czech Republic. In all these countries, the State pays for reduced work hours through the employers. Figure 5.5 shows two key parameters of these programs—the wage replacement payment to employees for reduced hours, and the rate of contribution by the State towards these expenses during the COVID-19 crisis period. Thus, for example, in Spain employees received 70 percent of their normal wage for reduced work hours (in addition to full payment for actual hours worked) during the first six months, and 50 percent thereafter; the State fully covers these costs. In all other countries as well, employees received 70–90 percent of their wage for reduced hours.⁴⁹ In all of these countries, the government’s contribution was higher than in the precrisis period, and in nearly all of them, employers were fully indemnified by the State for wages paid for reduced work hours. In France, for example, the full contribution replaced 90 percent of the minimum wage contribution that was in place prior to the crisis⁵⁰, while in the UK, the State contributed 75–80 percent.⁵¹ The share of employees who participated in these programs was high in all of these countries.

⁴⁷ See Box 5.1 of the Bank of Israel *Annual Report* for 2019.

⁴⁸ The payment rate depends on the duration of the period in which the employee was employed at a reduced position, and on whether the employee has children. For more information see Table 5.8.

⁴⁹ In the Netherlands, the government contributed 90 percent of wages for reduced hours, and the number of work hours for which the bonus was payable was determined based on the impact to business revenue. In Australia, a fixed amount was payable at 45 percent of the average wage in the market, for each employee preserved by the employer whose pay was not impacted, but only for businesses whose revenue was reduced by 30 percent or more.

⁵⁰ As of June, the government contribution was decreased to 85 percent and as of January 2021, employers in France would be reimbursed at only 60 percent, except for industries that were severely impacted—where the reimbursement remained at 100 percent.

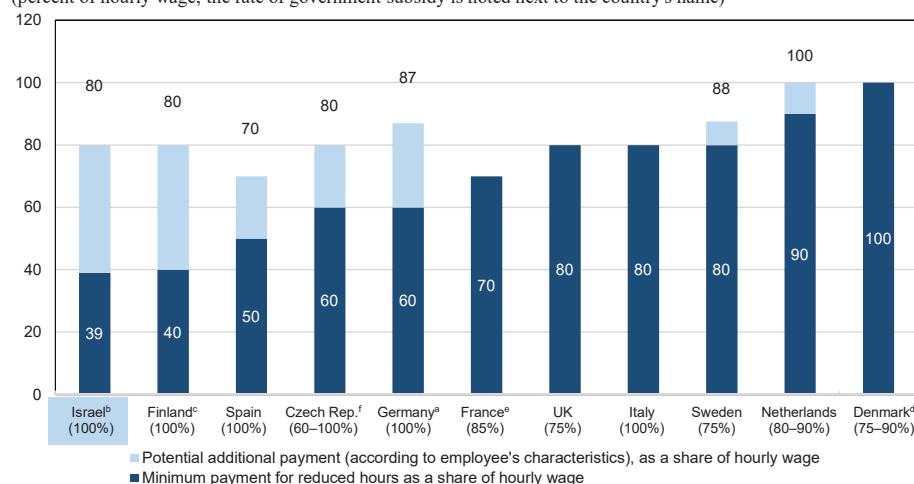
⁵¹ In Canada, the assistance provided was complicated. The rate of employment support was contingent on the impact on the business, with a significant share of the unemployed and those whose income was impacted in the crisis receiving weekly grants of C\$500 over and above the normal unemployment pay.

In France, for example, this covered 50 percent of those employed, and in Germany it covered 25 percent.

Figure 5.5

Rate of Payment for Reduced Work Hours*

(percent of hourly wage; the rate of government subsidy is noted next to the country's name)



* Details of each country's programs appear in Table 5.9. The data are listed for the relevant programs until January 2021.

^a In all countries other than Germany, the compensation is calculated according to gross wages. For Germany, the data are as a share of net wages.

^b The maximum compensation in Israel is calculated for an employee over age 28 who earned NIS 3000 per month. The minimum compensation is calculated for an employee up to age 28 who earned 1.5 times the average wage (above 28, unemployment benefits are 50 percent of the wage).

^c In Finland, the payment is calculated for salaries between 1000 and 5000 euros per month. Employers participate in some of the unemployment benefit payments for older workers (who are entitled to more generous unemployment benefits), depending on the firm's size.

^d In Denmark, the State pays up to 80 percent of an hourly worker's wage (an additional 10 percent is possible). The subsidy for salaried employees is up to 75 percent of their wage.

^e In France, the lower bound of 90 percent of the minimum wage.

^f In the Czech Republic, if a business closes for health-related reasons, employees are entitled to compensation of 100 percent of their wages, and the government reimburses the employer for the entire payment up to a total amount of 800,000 kronas and for 80 percent beyond that.

SOURCE: IMF country reports, OECD economic reviews, National Insurance Institute, and Table 5.9

Among the countries we surveyed, only Finland applied a policy similar to Israel's (with slightly different parameters, and for a period of up to 90 days), with the primary policy measure applied being a direct unemployment allowance from the State to the unemployed placed on full furlough—i.e., to those employees who were not dismissed but who did no actual work. Concurrently, a grant of €1,000 was paid in Finland to those who hired a previously unemployed person. Denmark applied a program similar to the furlough program, for employers required to dismiss a large number of employees⁵², but concurrently with the long-standing StW program, the terms of which were improved as of September.

The US acted somewhat differently from the other countries. The primary policy measure applied there was an increased unemployment allowance to dismissed employees, along with an extended eligibility period compared to the past. The federal government added \$600 per week to unemployment benefits (paid by the

The US behavior toward the labor market during the crisis differed other countries.

⁵² In this program, the employer continued to pay wages and was reimbursed by the government for 75 percent of the wages.

states) in April–July 2020, and \$300 per week as of August 2020 for 5 weeks. In addition, the eligibility for “normal” unemployment benefits was extended from 26 to 39 weeks, with the self-employed also made eligible. The PPP (Paycheck Protection Program) also allowed businesses to convert federal loans they received at the start of the crisis into grants—provided that at least 60 percent of the loan was used for payroll expenses, that the number of employees in the 24-week qualifying period was higher than the average number of employees in February–June 2019 and in January–February 2020, and that the wages for each employee were at least 75 percent of their precrisis wages.

All countries eased eligibility conditions, and programs were extended.

As in Israel, other countries also made access to assistance easier compared to eligibility conditions in the precrisis period (Table 5.9). All countries eased eligibility conditions, and programs were (gradually) extended through the first quarter of 2021 (or later). Thus, for example, in Germany eligibility was granted to firms where the number of work hours for 10 percent of employees was reduced by 10 percent, compared to eligibility criteria of 30 percent or more of employees in the precrisis period. The program also allowed employees whose work hours were reduced to work for another employer concurrently, without becoming ineligible to receive an unemployment allowance for the reduced hours.⁵³ In the UK, the unemployment allowance was increased to 63 percent of net wages, compared to 56 percent in the precrisis period.

Countries implemented complementary programs for employee preservation and re-employment.

In addition to the aforementioned programs to support income and employment, the countries implemented complementary programs designed to promote employee retention and reemployment (Table 5.9). The UK announced the Kickstart scheme, a program to provide subsidies for hiring younger employees. Canada provided subsidies for employee wages, with the rate depending on the extent of the decline in the employer’s revenues.

It is important to create programs in advance to provide solutions during a crisis.

The review shows that most countries relied during the crisis on programs that had existed in the precrisis period, in order to provide assistance and support for employee income, with some adjustments and extensions. Some countries added new programs, but these did not replace the primary policy tool used in the precrisis period. This finding is evidence of the importance of creating programs ahead of time to provide solutions during crises. Once a crisis is underway, the reaction speed in providing a solution for employees, for the unemployed, and for businesses is critical, and developing programs takes valuable time, as in many cases it requires institutions to adapt, as well as information that is not available. Thus, the attempts during this crisis to institute more effective and accurate assistance measures for affected employees in Israel ran into barriers—particularly lack of data about the extent of the impact on businesses, the industry they belong to, wages of employees at the outset of the crisis,

⁵³ This was subject to the total income not exceeding the previous net pay.

and work hours. Even the partial information available was dispersed across multiple government authorities.⁵⁴

Table 5.9 Measures to support continued employment and to make up income in OECD countries		
Country	Support programs	Adjustments to unemployment pay
Australia ¹	Job Keeper Payment: A new program, with a biweekly payment of A\$1,500 (45 percent of the average wage) to each employee of employers whose revenue was reduced by 30 percent compared to the precrisis period. Employers with annual revenue above A\$1 billion are only eligible if their revenue was reduced by 50 percent or more. Employers must continue to pay employees their full wages, and if they earned less than A\$1,500 – they must pay them at least A\$1,500. Dismissed employees may be reemployed and paid at least A\$1,500 per biweekly period, for as long as the employer receives the grant on behalf of these employees.	A\$150 per biweekly period was added to the unemployment allowances through March 2021.
Italy ²	Cassa Integrazione Guadagni (CIGO and CIGS programs) The plan that existed: The employer pays 80 percent of wages for reduced work hours, and is fully reimbursed for this amount by the State. (The maximum grant is €1,199 for those who originally earned over €2,159, or 60 percent of the average wage). Relief provided during the crisis: Employers exempted from national insurance payments with respect to the grant. Extended to include those who did not contribute to the program, and to the entire economy, whereas previously this was intended for specific industries and for medium and large businesses. Approval is based on the impact on revenue and on reaching agreement with the employees union, compared to more stringent requirements in the precrisis period. Eligibility was extended from 13 weeks in the precrisis period, to 42 weeks (effective through January 2021).	
US ³	Paycheck Protection Program (PPP): Employers received federal loans and were allowed to convert these into grants—provided that at least 60 percent of the loan was used for payroll expenses, that the number of employees in the 24-week qualifying period was higher than the average number of employees in February–June 2019 and in January–February 2020, and that the wages for each employee were least 75 percent of their precrisis wages.	The federal government added \$600 per week to unemployment allowances (paid by the states) in April–July 2020, and \$300 per week as of August 2020 for 5 weeks. In addition, the eligibility for “normal” unemployment pay was extended from 26 to 39 weeks, with the self-employed also made eligible.

⁵⁴ A government team (“the Directors General Committee”) recommended several improvements to be made to reporting and to information management by the government, which would allow the policy measures to be improved and better focused, including the following: 1. Monthly reporting by employers to the National Insurance Institute about wages and work hours of each employee; 2. Monthly reporting of employees on furlough; 3. Including the actual work location of employees on the annual reporting by employers to the Tax Authority (Form 126); 4. Improvement and regulation of business reporting on the industry to which they belong; 5. Elimination of reporting by separate businesses to the Tax Authority as “consolidated businesses”; 6. Merger of employment data, attributes of businesses and the unemployed in a uniform operating database, to be managed by the Central Bureau of Statistics and made accessible in real time to authorities involved in formulating policy.

Table 5.9
Measures to support continued employment and to make up income in OECD countries

Country	Support programs	Adjustments to unemployment pay
UK ⁴	Coronavirus Job Retention Scheme (furlough scheme) Compensation at 80 percent for reduced hours (up to £2,500, or 125 percent of the average wage). Through August, the State paid employers 100 percent of the cost of making up wages, in September 87.5 percent (up to £2,187), and in October 70 percent (up to £1,875). This program was discontinued on October 31. November 1, 2020–June 30, 2021: “Job Support Scheme”—employers and the State each pay 33 percent of the employee’s wage for reduced hours, and the employee must work at least 33 percent of their original work hours. Intended for small and medium businesses, and for large businesses severely impacted by the crisis. Government grant of £1,000 for employers who reemploy furloughed employees continuously from November 2020 through January 2021, at an average monthly wage of £520 or higher. Kickstart scheme: Subsidy for wages of employees aged 16–24 who are at risk of prolonged unemployment.	Temporary increase of unemployment benefits, to 63 percent of net wages, instead of 56 percent previously.
Germany ⁵	<i>Kurzarbeit</i> plan Relief and benefits during the crisis: It is possible to apply when 10 percent of employees have their work hours reduced by 10 percent or more, compared to a reduction in work hours for 30 percent of employees before the crisis. In addition, the program was extended to cover temporary employees. For employees whose work hours decreased by 50 percent or more, the supplementary income increased from 60 percent (or 67 percent with child) prior to the crisis, to 70 percent (77 percent) from the fourth month and to 80 percent (87 percent) from the seventh month. Payment of national insurance contribution by employers for the reduced hours was waived, compared to 80 percent prior to the crisis. The requirement to utilize all paid leave prior to gaining access to the program has been eliminated. Working an additional job was allowed, provided that total wages do not exceed the precrisis wages. The program is valid through 2021.	
Denmark ⁶	Wage Compensation Scheme: Compensation to employees in significantly impacted businesses. Any business that is about to dismiss 30 percent of employees or more, or at least 50 employees, may place them on temporary leave with full pay, and the government would compensate them for 75 percent of the wages (90 percent for hourly employees), up to DKK 30,000 (75 percent of the average wage). Employees must use 5 days of annual leave and may not work for their employer or elsewhere. The unemployment period was initially capped at 90 days, and later extended through June 2021. StW: The program continued to operate as it was prior to the crisis, and was extended from September. Employers may reduce the position to 3 days per week, with the government paying increased unemployment pay for the days reduced.	

Table 5.9
Measures to support continued employment and to make up income in OECD countries

Country	Support programs	Adjustments to unemployment pay
The Netherlands ⁷	Tijdelijke Noodmaatregel Overbrugging voor behoud van Werkgelegenheid (“NOW”): Three similar, consecutive stages (March–May, June–September, October 2020–June 2021). The grant is intended for continued employment by companies whose revenue was down by 20 percent or more. It is calculated as the product of the percentage of decrease in revenue and 90 percent of wages, plus 30 percent with respect to social benefit contributions (40 percent from June). It is payable for monthly salaries of up to €9,538 (twice the average pay) and would be reduced to €4,845 as from April 2021. Payment is contingent on the employer not dismissing employees during this period. From June 2021, they may dismiss and may reduce pay by up to 10 percent, and the grant would be reduced accordingly (From April 2021, the reduction may be up to 20 percent.) Beginning in October, the grant factor was reduced to 80 percent of wages (multiplied by the percentage of decrease in revenue) and in April 2021 it would be reduced to 60 percent. Employers who receive this grant may not distribute any dividends, buy back their own shares, or pay bonuses to executives.	Unchanged.
Spain ⁸	ERTE Existing plan: Payment to employees for reduced hours: 70 percent of gross wages. After 180 days, this is reduced to 50 percent (up to €1,412. The insured wage is capped at 75 percent of the average wage). The State funds 100 percent.	
Poland ⁹	Loans to businesses, with 75 percent of the loan convertible into a grant if the number of employees was not reduced for 12 months. Since November: Extended for impacted industries through June 2021. Furthermore, in these industries 100 percent of the loan may be converted. Wage subsidies: Up to 40 percent of average wage paid by the company prior to the crisis. Through November: Waiver of social benefit contributions for 3 months.	Unemployment pay increased by 35 percent in September–November. The increase was smaller from December through June 2021. Solidarity grant payable to the unemployed through June.
Finland ¹⁰	Temporary layoff scheme Unchanged: Employees placed on furlough for up to 90 days are eligible for unemployment pay. They may be placed on furlough again if reemployed between periods. Employees may work part-time during the furlough period and retain eligibility for unemployment benefits. Changes to the program since the outbreak of the crisis: The option for temporary dismissal was extended to employees hired on short-term contracts. The minimum notice and negotiation period were reduced from 5 weeks prior to the crisis to 5 days.	Changes since the outbreak of the pandemic: No changes were made to eligibility criteria or to allowance amounts. The waiting period for unemployment benefits was eliminated.

Table 5.9
Measures to support continued employment and to make up income in OECD countries

Country	Support programs	Adjustments to unemployment pay
Czech Republic ¹¹	Antivirus Employment Protection: Grant payable to employers who were required to continue paying wages if the crisis had an adverse impact on their operations. The grant depends on the cause of the impact. If the business was shut-down due to healthcare restrictions imposed by the government, employees were eligible to receive their full wages (up to CZK 50,000) and the government indemnified the employer for the full amount up to CZK 800,000 (at 80 percent over 800,000). If the cause of reduction was too many employees in quarantine, all other employees are eligible for 100 percent of their wage. If the cause was a shortage of raw materials or of other suppliers' services, employees were eligible for 80 percent of the wage. If the cause was low demand, they were eligible for 60 percent. In all of these cases, the employer was eligible for indemnification of 60 percent of wages paid, up to CZK 29,000 per month (80 percent of the average wage).	Unchanged
France ¹²	Short-time work (StW) The program was revised in March 2020, in July 2020, and in January 2021. The initial program was the most generous one, and benefits were reduced with each revision. The program was available to companies that reduced work hours or closed some of their branches. Under this program, employees earn 84 percent of their net wage (compared to 65 percent typically for unemployment pay), but not less than the minimum wage, for up to six months (with potential extension up to 12 months). From January 2021, the supplementary pay was reduced to 71 percent. From July 2020, the qualifying wage was capped at €4,608, or 110 percent of the average wage. Eligibility for this program was extended in March to all contract types (regardless of seniority), and filing of applications was simplified. Existing companies may file an advance application with authorities for payment of reduced hours, and may retroactively revise the actual number of hours reduced up to 12 months back. In March 2020, the reimbursement payable by the State to employers was raised to 100 percent of actual cost of payment for reduced hours, compared to 90 percent of the minimum wage prior to the crisis. In June 2020, the reimbursement was reduced to 85 percent of the employer's cost. In severely impacted industries—hotels, tourism, culture, and others—or those restricted by government decrees, the reimbursement rate remained at 100 percent. In January 2021, the reimbursement rate was reduced to 60 percent (it remained at 100 percent for severely impacted industries). The current program is valid for six months. From July 2021, employers may join an alternative collective bargaining agreement under which businesses that sign an employment agreement for at least 40 percent of regular hours, for a period of 24 months over the next 3 years, would be reimbursed at 85 percent.	No significant change; 65 percent of the previous salary.

Table 5.9
Measures to support continued employment and to make up income in OECD countries

Country	Support programs	Adjustments to unemployment pay
Canada ¹³	Canada Emergency Wage Subsidy (CEWS) A new program providing subsidies to businesses with a decrease in revenue of 15 percent or more in March, or 30 percent or more in April and thereafter, 75 percent of wages (up to C\$1,129 per week per employee, about twice the average wage). A different rate is in place for furloughed employees. Businesses that are not eligible for this benefit may receive up to 10 percent of employees' wages. The program was revised in July, with assistance better aligned with the decrease in revenue, decreasing as the support period grows longer. In November, the program was extended through June 2021.	Extension of the maximum period for receiving unemployment allowance, elimination of waiting periods, less strict and more expansive eligibility criteria. Work Sharing Program: Supplementary pay to employees in part-time jobs with employers whose revenues were impacted. Canada Emergency Response Benefit (CERB) Since April 1: Weekly grant of C\$500 for 16 weeks, payable to employees who lost their jobs due to the pandemic (or those earning up to C\$1,000 per month other than the grant). The grant was extended for a further 28 weeks after being fully utilized and after expiration of the program.
Sweden ¹⁴	Short-term work allowance: Agreement where employers may agree with their employee union (or subject to agreement by 70 percent or more of the employees) to reduce work hours by 20 percent, 40 percent, 60 percent, or 80 percent, along with reduction of wages by 4 percent, 6 percent, 7.5 percent, or 12 percent compared to the precrisis wages, respectively. The government compensates employers at 15 percent, 30 percent, 45 percent, and 60 percent of wages (75 percent of wages for reduced hours), provided that employers first dismiss temporary employees and consultants, and avoid any dividend distributions and bonus payments to executives. The compensation is paid for monthly wages of up to kr44,000 (similar to the average wage) for a period of up to 9 months, after which there is a two-year qualification period for renewed eligibility. (This requirement was temporarily suspended in early 2021.) The right to an 80 percent reduction was instituted in 2020 for May, June and July only, and was then reinstituted from January to April 2021. In May 2021, this option would be eliminated, and government contributions toward the other steps would be reduced to 10 percent, 20 percent, and 30 percent of wages (50 percent of wages for reduced hours).	Eligibility conditions for unemployment allowance were eased, the insured wage cap was increased, and the condition stipulating no compensation for the first 6 days of unemployment was suspended through January 2021.

Table 5.9
Measures to support continued employment and to make up income in OECD countries

Country	Support programs	Adjustments to unemployment pay
	¹ Australian government Fact Sheet, Economic Response to the Coronavirus. https://treasury.gov.au/coronavirus/jobkeeper ² IMF (2021) Article IV Consultation, Staff Report, France, p. 64. https://www.imf.org/-/media/Files/Publications/CR/2021/English/1FRAEA2021001.ashx ³ https://esd.ny.gov/sba-paycheck-protection-program-ppp ⁴ OECD (2020), OECD Economic Surveys: United Kingdom 2020, OECD Publishing, Paris, https://www.oecd-ilibrary.org/economics/oecd-economic-surveys-united-kingdom_19990502 ; IMF (2020), IMF Country Report: UNITED KINGDOM 2020, IMF Publishing, Washington, D.C. https://www.imf.org/en/News/Articles/2020/12/18/pr20379-united-kingdom-imf-executive-board-concludes-2020-article-iv-consultation ; IMF (2021) Article IV Consultation, Staff Report, France, p. 64 https://www.imf.org/-/media/Files/Publications/CR/2021/English/1FRAEA2021001.ashx ⁵ OECD (2020), OECD Economic Surveys: Germany 2020, OECD Publishing, Paris, https://www.oecd-ilibrary.org/economics/oecd-economic-surveys-germany_19990251 ; IMF (2020), IMF Country Report: GERMANY 2020, IMF Publishing, Washington, D.C. https://www.imf.org/en/Publications/CR/Issues/2021/01/15/Germany-2020-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-50020 ; IMF (2021) Article IV Consultation, Staff Report, France, p. 64. https://www.imf.org/-/media/Files/Publications/CR/2021/English/1FRAEA2021001.ashx ⁶ https://www.twobirds.com/en/news/articles/2020/denmark/covid-19-guidance-for-employers-in-denmark ; https://ec.europa.eu/competition/state_aid/cases/1/202048/289705_2214196_53_2.pdf ⁷ https://business.gov.nl/corona/overview/the-coronavirus-and-your-company ; https://www.eversheds-sutherland.com/global/en/what/articles/index.page?ArticleID=en/coronavirus/Coronavirus-further-extension-emergency-measures-Netherlands ⁸ IMF (2021) Article IV Consultation, Staff Report, France, p. 64. https://www.imf.org/-/media/Files/Publications/CR/2021/English/1FRAEA2021001.ashx ⁹ IMF (2021), IMF Country Report: Republic of Poland 2020, IMF Publishing, Washington, D.C.: https://www.imf.org/en/Publications/CR/Issues/2021/02/05/Republic-of-Poland-2020-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-50066 ; OECD (2020), OECD Economic Surveys: Poland 2020, OECD Publishing, Paris, https://www.oecd-ilibrary.org/economics/oecd-economic-surveys-poland_1999060x . ¹⁰ OECD (2020), OECD Economic Surveys: Finland 2020, OECD Publishing, Paris, https://www.oecd-ilibrary.org/economics/oecd-economic-surveys-finland_19990545 ; Kyrra, T., H. Pesola, and A. Rissanen, (2017), Unemployment Insurance in Finland: An examination of Recent Changes and Empirical Evidence on Behavioral Response, https://www.doria.fi/handle/10024/149406 . ¹¹ OECD (2020), OECD Economic Surveys: Czech Republic 2020, OECD Publishing, Paris, https://www.oecd-ilibrary.org/economics/oecd-economic-surveys-czech-republic_19990561 ; https://www.eversheds-sutherland.com/global/en/what/publications/shownews.page?News=en/czech-republic/en/Coronavirus_a_practical_guide_for_employers ¹² IMF (2021), France, Staff Report. https://www.imf.org/-/media/Files/Publications/CR/2021/English/1FRAEA2021001.ashx ¹³ OECD (2021), Economic Review of Canada 2021. https://www.oecd-ilibrary.org/economics/oecd-economic-surveys-canada_19990081 ; IMF (2020), IMF Country Report: CANADA 2020, IMF Publishing, Washington, D.C. https://www.imf.org/en/Publications/CR/Issues/2021/03/17/Canada-2021-Article-IV-Consultation-Press-Release-and-Staff-Report-50273 ¹⁴ https://tillvaxtverket.se/english/short-time-work-allowance-2021.html	

d. Analysis of the furlough model vs. support models in other countries

A major risk associated with the employment crisis lies in turning cyclical unemployment into structural unemployment. Long-term unemployment results in erosion of human capital, an impact on long-term income, and in some cases, despair and leaving the work force. This is in addition to the social aspects of this phenomenon. Therefore, a key test for the various models applied to address the employment crisis in various countries (furlough in Israel; dismissal and payment of unemployment benefits such as in the US; payment of unemployment benefits to those who continue to work, for the hours reduced from their job—"the German model"; pay subsidies as in Australia or the Netherlands)—is the extent to which the impact on employment created during the crisis would persist thereafter.

The furlough model has several advantages, which are partly reflected in rapid growth of employment between lockdown periods in Israel in those industries allowed to reopen: 1. The model shifted the burden of payroll expenses for employees who were temporarily not required from businesses to the State, thereby avoiding mass layoffs; 2. Because eligibility for this arrangement was contingent on going on full furlough, and since the (net) replacement rate of the unemployment benefits was reasonable, this arrangement reduced pressure on employees and employers to attend their work place despite the restrictions, in particular with the closing of kindergartens and schools and the reduced service of public transportation; 3. The model prevented employers from having to immediately finance the cost of employee dismissal (severance pay, accrued vacation, and other benefits) and the litigation this would have entailed, at a time when they faced liquidity issues; 4. The model retained the connection between employees and employers—matched by recruitment processes prior to the crisis—and prevented loss of specific human capital accrued by employees at their work place. As for employees, receiving unemployment benefits during furlough limited the adverse impact on their income—although it was larger than in most countries that adopted models of subsidizing partial employment—without making it necessary to urgently look for new employment when the labor market was at a historical low point. This model allowed them to maintain their connection with the work place where they had acquired specific knowledge and skills (human capital), preserving a reasonable likelihood of returning to their work place should the business survive the crisis. For employees with long seniority at their work place, maintaining their connection there prevented significant, long-term loss of income (Lachowska et al. 2020).⁵⁵

The model where the State pays unemployment benefits only to those actually dismissed has an advantage over the furlough model, in that it requires employers and employees to make rapid adjustments in times of crisis, and prevents failing companies from retaining employees over time even when their likelihood of survival is low. Employee turnover and transition from less efficient companies to more efficient ones

One key test for the various employment support models is the extent to which the impact on employment will persist.

The advantages of the Israeli furlough model were reflected in faster employment growth between lockdown periods.

After a recovery period from the crisis, the benefit of re-employment programs, professional training, and subsidizing hiring of employees from vulnerable groups will increase.

⁵⁵ M. Lachowska, A. Mas, & S. A. Woodbury (2020). "Sources of Displaced Workers' Long-Term Earnings Losses", *American Economic Review*, 110(10): 3231–3266.

may increase productivity and contribute to faster economic recovery from crises (Carrillo-Tudela, et al. 2020; Barrero, et al. 2020).⁵⁶ However, during the COVID-19 crisis—which had noneconomic causes and carried expectations that its primary impact would be over within a limited time—this advantage was apparently of lesser importance. Most businesses whose operations were curtailed did not do so due to issues with managing their business, but rather due to healthcare restrictions and a temporary decline in demand. Therefore, in this case, rapid dismissal of employees would have unnecessarily imposed high costs on employees and employers, as described above. The employees would have apparently been unlikely to find alternative employment, due to the small number of available jobs compared to the number of those unemployed.

The issue of work incentives in the furlough model is less relevant during a crisis.

The distance created between employer and employee by the furlough model may make it easier to proceed to termination.

The “German model” allows companies to better preserve employee skills and team work.

However, once the epidemiological restrictions on activity would be lifted, and after a recovery period, the economic benefit of continued government support through the furlough model for retaining employer-employee relations created prior to the crisis would decrease, and the benefit of reemployment programs, professional training and subsidizing hiring of employees from vulnerable groups would increase.

Another major disadvantage of the furlough model is that a combination of furlough and assured unemployment benefits for a long period may provide a disincentive for employees to return to employment, and may lead to habits that would make it harder for them to resume employment when this would become possible (especially when kindergartens and schools are closed, public transportation is limited, and working remotely is not relevant). The unemployed bear the responsibility of looking for employment, and should they refuse any employment offers from the Employment Service, they may forfeit their unemployment pay—which is not applicable to employees on furlough. However, this disadvantage, too, was not as relevant during the current crisis because of few potential job offers, and the Employment Service found it challenging to even cope with the online enrollment of the mass of dismissed or furloughed employees, especially given the physical restrictions on visits to the Employment Service offices due to the pandemic.

The furlough model had some disadvantages compared to the partial employment subsidy model that was applied in many countries in Europe. In the furlough model, the temporary work disruption indeed retains the employer-employee relations to some extent, but the distancing created between the parties may make it easier to proceed to dismissal and may create a long-term perception of unemployment among employees. The inability to place employees on partial furlough makes it necessary for employers to more significantly disconnect from some employees, rather than having all of them attend their work place for some of the time. It is unknown whether the furlough model caused these effects with the same intensity as unemployment does, but the effects of long-term unemployment may also apply in the case of long-

⁵⁶ J. M. Barrero, N. Bloom, & S. J. Davis (2020). “COVID-19 is Also a Reallocation Shock”, Brookings Papers on Economic Activity conference draft, June 25; C. Carrillo-Tudela, G. Hermann, & L. Kaas (2020). “Recruitment Policies, Job-Filling Rates and Matching Efficiency”, CEPR Discussion Paper No. DP14727.

term furlough. Furthermore, the simple process whereby employees may be placed on furlough and reemployed provides incentive to employers to place employees on furlough whenever they are not required, thereby placing the burden of their pay on the State.

Many of these disadvantages imply an advantage for the “German model”. This model, too, provides employers with flexibility in employing their employees, but mostly with a lesser impact on employee income than full furlough, while retaining closer employer-employee relations than in the furlough model. Companies are better able to adjust the work hours of employees to their needs at any time, since employees are already at the work place. This strategy allows companies to better preserve employee skills and team work.

A key advantage of the full furlough model that was applied in Israel is that employers are exempt of all expenses with respect to the employee during the furlough period. This was highly important during the current crisis, since businesses whose operations were severely curtailed were not required to use their financial reserves to bear part of the employment cost, while still maintaining the connection with their employees. Countries that applied the partial employment model recognized this issue, and most of them transitioned, during the crisis, from partial contribution towards pay for reduced hours, to full coverage (Table 5.9). However, countries such as Sweden, Australia, and the Netherlands required employers to bear some of the payroll cost for reduced hours, and later in the year, some of the other countries partially resumed employer contribution toward costs, which may diminish their capacity to accelerate activity once restrictions have been lifted.

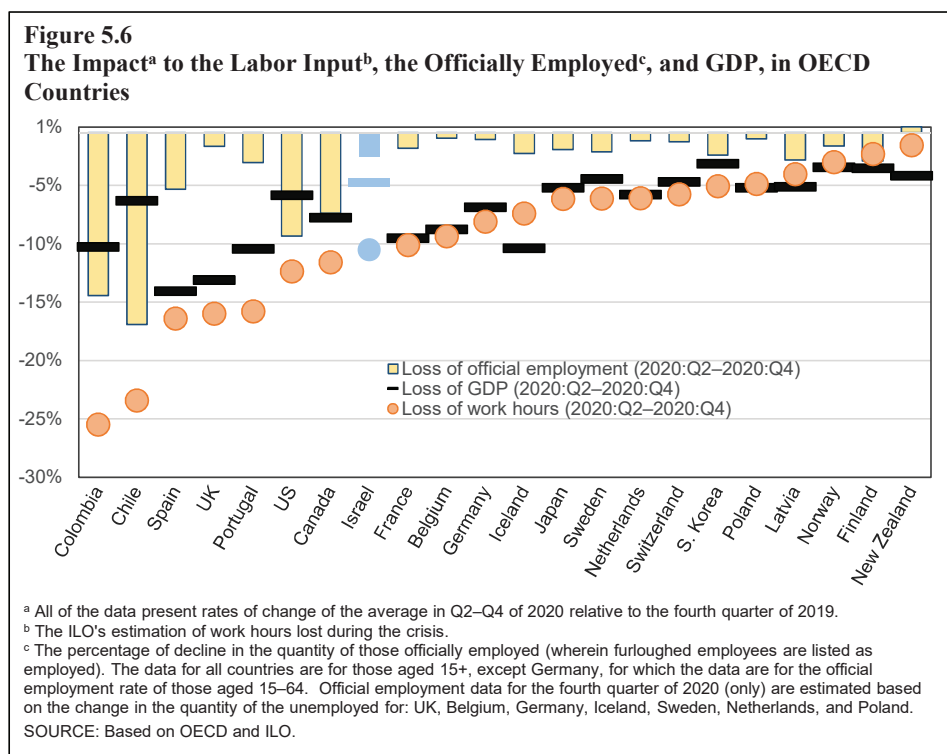
It is too early to determine whether Israel would have been better off adopting the German model during the crisis. Along with its advantages, the application of this model is far more complex than the application of the furlough model (particularly in Israel, which lacked data about employees’ work hours and wages around the outset of this crisis). Because some of the institutional infrastructure for applying this model is lacking in Israel, it is no surprise that, as was the case in other countries, the government turned to tools that were immediately available and well-known to decision makers.

It is also unclear whether the model promotes a greater or lesser reduction in work hours. A continuous model, one that does not require the employer to choose between employment and unemployment, may motivate employers to overuse the benefits offered by the model, thereby actually increasing the impact on employment and the cost to the State, compared to the furlough model which requires a binary decision of whether or not to employ the employee. The overall effect depends on the composition of the impact on businesses, the number of employees, which affects the extent to which employers may spread the impact among employees, and optimal employment—which is an unknown quantity, certainly during a major economic upheaval. During the pandemic, this model may also have provided an incentive to operate businesses that should have shut down completely for health reasons, and

Countries that applied the “German model” transitioned, during the crisis, to full State participation in paying for reduced hours.

It is too early to answer the question of whether Israel would have been better off adopting the German model.

may increase the number of interactions between employees, and consequently the potential for infection. Moreover, because a major part of the reduced employment in Israel was in industries that were in any case fully shut-down for an extended period (Table 5.2 in Part A of this chapter), the applicability of the “German model” in Israel would have been limited in any case.



Israel is slightly above the midpoint of the distribution of countries in terms of total impact on work hours.

Figure 5.6 presents an estimate of the overall reduction in work hours in OECD countries in the last three quarters of 2020 (after the start of the crisis), compared to the final quarter of 2019. This is presented along with the decrease in GDP and in the total official number of those employed (based on a definition whereby employees on furlough and subsidized employees count as employed). The figure shows that Israel is slightly above than the center of the distribution of countries in terms of the total decrease in work hours, and that in some countries that applied supplementary income models (“the German model”) there was less of an adverse impact on work hours than in Israel, while some (UK and Spain) saw more of an impact. It also shows that in most countries, official employment was less affected than actual work hours. This reflects a policy that reduced work hours for all employees (by way of partial furlough or supplementary income measures) without dismissal of employees. It should be noted that in Israel, as opposed to these other countries, actual employment

(defined as excluding employees on furlough) decreased by a rate that is close to the rate of decrease in work hours (see Chapter 2 of this report). This means that the entire decrease in work hours in Israel reflects a disconnect between employers and employees, whereas in countries that applied the “German model”, only the decrease in official employment reflects such an impact.

It is further demonstrated that compared to most countries, in Israel, work hours declined excessively considering the negative impact on GDP. A similar outcome was also observed in the US—which also did not apply any supplementary income programs and even instituted unemployment benefits at a fixed, relatively high amount, regardless of previous pay. However, unlike in the US, which also did not have a furlough arrangement, official employment in Israel, including those placed on furlough, suffered little impact—even considering the decline in GDP. Conversely, in Finland, which also did not apply a supplementary income model, the negative impact on both work hours and employment was low.

In summary, the numerous factors that impacted the labor market currently make it difficult to determine which policy measures resulted in the optimal outcome. A key test should be the pace and efficiency at which countries emerge from the crisis once the epidemiological part is concluded—both in terms of avoiding long-term unemployment (either full or by way of partial employment) and in avoiding structural issues, such as economically nonviable businesses that continue to operate merely due to government support measures. However, in preparing for the longer term, it is advisable to create the infrastructure to allow for the application of more diverse and better focused supportive tools, so as to expand the options available to the government in managing crises in the labor market.

In Israel, work hours declined excessively considering the impact to GDP.

Infrastructure should be put in place to allow for the application of more diverse and better focused supportive tools.

Chapter 6

The General Government and Its Financing

- The general government deficit was 11.9 percent of GDP in 2020, compared with 4.5 percent in 2019. The budget deficit was 11.6 percent of GDP, compared with 3.7 percent in the previous year. Most of the deficit increase reflected an upturn in expenditure totaling 7.1 percent of GDP.
- The increase in government spending did much to ease the blow to economic activity, the risks to businesses' survival, and the development of protracted unemployment.
- The public debt to GDP ratio increased from 60 percent to 72.6 percent—the highest since 2009 and slightly above the OECD median. The increase in this ratio was somewhat below the average increase among OECD member states.
- Israel had the sixth-highest deficit rate among OECD countries. This is more a reflection of Israel's high precrisis deficit level than of the increase due to the crisis.
- Several times during the year, the Knesset responded to the urgency of the health emergency by approving COVID-19 exceptional budget allocations as one-off budget increases for 2020 and 2021. The uncertainty surrounding the length of the acute crisis placed a burden on policy planning, causing policy in Israel, as in most countries, to be adjusted during the year as developments warranted.
- A lesson to be learned from the delays and difficulties that occurred in providing businesses and workers with relief is that it is important to create a permanent support mechanism, which is triggered by economic indicators, such that it is applicable without delay and phased out automatically as it becomes less necessary.
- The pandemic threatened to overwhelm the inpatient care system, which is chronically short of personnel and infrastructure. To make the system more resilient, the temporary personnel slots and beds allotted to the hospitals during the crisis need to be made permanent, academic training of nurses should be expanded, intensive-care units need reinforcement, and medical buildings should be designed and built in a way that will allow flexibility in states of emergency.
- Ongoing activity in the education system was badly impaired during and between the lockdowns. Investment in digitalizing schools and decentralizing authorities from the central government to local authorities and school principals, coupled with administrative and pedagogical autonomy, will help to improve the quality of education in Israel.
- The revisions of fiscal rules that were needed to cope with the COVID-19 crisis spilled into regular budget fields as well. Some changes in the rules of the interim budget have weakened the institutional limitations that give the government an incentive to pass its budgets on time. It is important for the next government to approve a regular budget promptly and to restore the control and audit mechanisms, tailoring the fiscal rules to the state of the economy and to responsible deficit targets that are in line with its future long-term objectives.
- The cumulative increase in the debt to GDP ratio due to the COVID-19 crisis will erode slowly even if the interest rate remains far below the growth rate. Therefore, the debt to GDP ratio in the coming decades will probably remain higher than what was predicted on the eve of the crisis, possibility leaving the government with less fiscal space to cope with further crises.
- As the advanced economies begin to recover from the crisis, there is an intention among them to move toward a "green recovery," in which measures taken to stimulate activity will yield long-term utilities as well. A similar process should be promoted in Israel.

1. MAIN DEVELOPMENTS

The general government deficit was 11.9 percent of GDP in 2020, compared with 4.5 percent in 2019. The budget deficit was 11.6 percent of GDP, compared with 3.7 percent in 2019.¹ The public debt to GDP ratio climbed from 60 percent of GDP to 72.6 percent, wiping out a decade of decline (Figure 6.1). The deficit was smaller at year's end than projections made during the year because the contraction of nominal GDP was unexpectedly milder, allowing tax collection to surpass expectations and leaving unperformed some of the budget increases that were made to cope with the COVID-19 crisis and some of the interim budget, which was below the statutory expenditure ceiling to begin with.

The growth of the general government deficit reflected an increase of 7.1 percent of GDP in spending and a decline of just 0.3 percent of GDP in revenue.

The historically sharp increase in the general government deficit reflected a 7.1 percent of GDP increase in expenditure (16 percent relative to the previous year) and a decline of just 0.3 percent of GDP in revenue (a 2 percent decrease in nominal terms relative to the previous year's revenue). The increase in expenditure was mainly due to greater support of businesses and transfer payments to households (4.8 percent of GDP) and, in smaller part, to a 1.5 percent of GDP increase in civilian public consumption and a 1 percent of GDP uptick in public investment (Table 6.1).²

Most governments responded to the pandemic by taking unprecedented measures to prevent its spread, including lockdowns, restrictions on business activity³, and massive fiscal mobilization to boost healthcare system spending, give relief to vulnerable households, and sustain businesses in shuttered industries. The International Monetary Fund estimates that the budget measures adopted worldwide through the end of 2020 came at the cost of 8.4 percent of global GDP.⁴ In addition, extrabudgetary measures totaling 6.1 percent of GDP were adopted through programs such as direct loans, state-guaranteed loans, and equity injections. In Israel, the government's measures for 2020–2021 are estimated at 15 percent of GDP (NIS 208 billion)—11 percent of GDP within the budget and 4 percent extrabudgetary. The unprecedented support of the unemployed and of businesses, along with further relief for households, appears to have prevented a further decline of 1.9–2.6 percent of GDP in 2020.⁵

¹ The general government is composed of the central government, the National Insurance Institute, local authorities, NGOs (HMOs, universities, yeshivot, etc.) that derive most of their income from the general government, and the National Institutions (the Jewish Agency for Israel, JNF-KKL, and the World Zionist Organization). Its activity is measured in accordance with the National Accounts definitions, which are different from those used in the government budget.

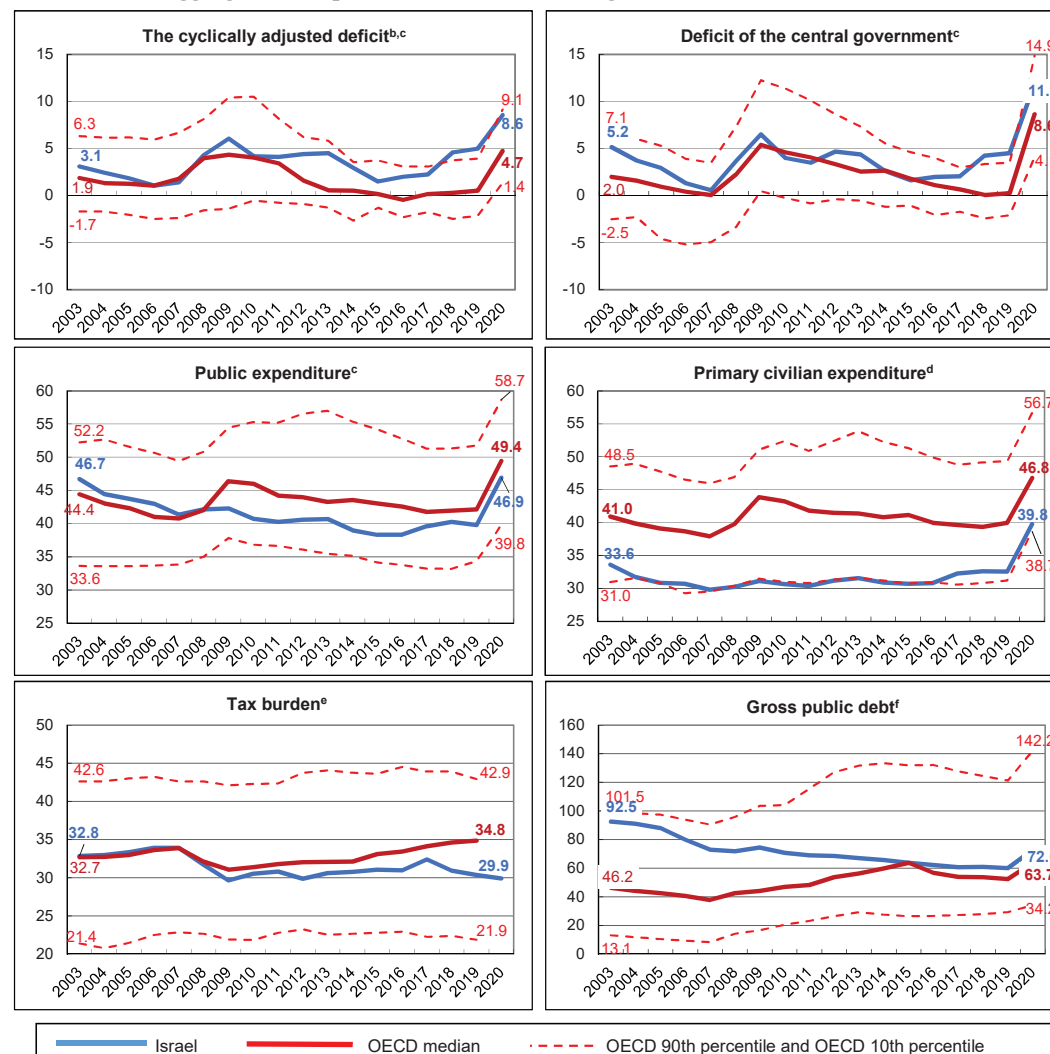
² Even though the government was operating under an interim budget, public investment was allowed to increase due to the maturation of large-scale infrastructure projects at Israel Railways and the Greater Tel Aviv light rail and, to a smaller extent, acceleration programs that the government pushed forward when the pandemic crisis began.

³ For an international comparison of the severity of the restrictions, see Chapter 1.

⁴ The IMF's reporting in GDP terms divides the total announced programs by a single year's GDP because different countries deploy the programs to different terms (1–4 years). The intent, however, is to compare the countries in terms of total measures announced.

⁵ For discussion of estimates of the fiscal multipliers in the course of the crisis, see Chapter 2.

Figure 6.1
Israel's Fiscal Aggregates Compared to the OECD Average^a, 2003-2020 (percent of GDP)



^a Data for OECD countries are the medians of all member countries for which there are data.

^b Cyclically adjusted deficit data for Israel are according to the accepted international definition and taken from the OECD systems. OECD data are as of the beginning of December. In order to adjust the Israeli data to up-to-date Central Bureau of Statistics estimates, the difference between the overall deficit according to the OECD estimate and the overall deficit calculated by the Bank of Israel was deducted from Israel's cyclically adjusted deficit. This difference amounts to 1.7 percent of GDP.

^c Excluding the reduction of expenses financed by the sale of land. See discussion in Footnote 2 of Chapter 6 in the 2019 Annual Report.

^d Due to a lack of up-to-date data, defense expenditures in 2019 and 2020 are equal defense expenditures in 2018 for all countries except Israel.

^e The graphs are presented up to the last year for which there are data in the OECD systems.

^f Data are in line with the International Monetary Fund's definition, and are taken from the IMF systems.

Table 6.1
The main components of the general government's revenue and expenditures, 2014–2020

	(percent of GDP)						
	2014	2015	2016	2017	2018	2019	2020
Total public revenue	36.4	36.7	36.3	37.6	36.0	35.3	35.0
Income from property	0.7	0.7	0.5	0.6	0.5	0.5	0.5
Total taxes	30.8	31.0	31.0	32.4	30.9	30.3	29.9
Indirect taxes on domestic production	12.5	12.6	12.1	12.3	12.2	11.9	11.5
Indirect taxes on civilian imports	3.2	3.0	3.4	2.7	2.8	2.7	2.8
Direct taxes, fees and levies	10.0	10.3	10.4	12.1	10.7	10.5	10.5
National Insurance Institute revenue	5.1	5.1	5.2	5.3	5.3	5.3	5.1
Grants	1.3	1.4	1.4	1.1	1.1	1.0	1.0
Other ^a	3.6	3.5	3.4	3.5	3.5	3.4	3.6
Total public expenditure^b	39.0	38.3	38.3	39.6	40.3	39.8	46.9
Current expenditure	35.0	34.4	34.3	35.2	35.7	35.3	41.5
Domestic civilian consumption	16.9	16.8	16.9	17.4	17.6	17.5	19.0
Domestic defense consumption	4.6	4.5	4.4	4.4	4.5	4.3	4.4
Defense imports	1.0	1.0	1.0	0.7	0.7	0.7	0.7
Direct subsidies	0.7	0.7	0.7	0.9	0.9	1.0	4.2
Transfer payments on current account	9.5	9.4	9.3	9.7	9.7	9.7	11.3
Interest payments ^c	2.5	2.1	2.1	2.2	2.4	2.2	2.0
Transfer payments on capital account ^d	0.5	0.5	0.5	0.6	0.6	0.6	0.5
Investments of the general government ^b	3.5	3.3	3.5	3.8	4.0	3.9	4.9
Primary civilian expenditure^b	30.9	30.7	30.8	32.3	32.6	32.6	39.8
Total deficit of the general government^b	2.6	1.6	2.0	2.1	4.3	4.5	11.9
Central government deficit (excluding provision of credit) ^c	2.7	2.1	2.1	2.0	2.9	3.7	11.6
Current deficit of the general government	1.9	1.2	1.4	1.1	3.1	3.5	10.1
Total cyclically adjusted deficit using international definition ^{b,f}	3.0	1.5	2.0	2.3	4.6	5.0	8.6
Net public debt ^{g,h}	62.5	60.6	59.0	57.5	58.1	57.9	68.4
Gross public debt ^g	65.7	63.8	62.1	60.6	60.9	60.0	72.6

^a Includes transfer payments from the public on the current and capital accounts, imputed pensions, depreciation, capital transfers from abroad, and transfers from abroad

^b Excludes the reduction of expenses financed by the sale of land.

^c In 2018, the Central Bureau of Statistics revised the calculation for interest expenses from 1995 onward, and they are now calculated on a cumulative nominal basis

^d Includes mortgage subsidies and transfers on the capital account to nonprofit organizations and businesses.

^e The central government deficit is calculated based on cash performance and includes only the deficits of the government and the National Insurance Institute. It does not include municipalities, nonprofit organizations, or the national institutions. The fiscal targets relate to this measure, and not the deficit of the general government.

^f Based on the OECD estimate, adjusted to revised Central Bureau of Statistics Data. For more information see footnote b in Figure 6.1.

^g Excluding municipalities' debts to the government.

^h Net public debt equals the gross public debt minus active loans minus government deposits with the Bank of Israel.

SOURCE: Based on Central Bureau of Statistics data.

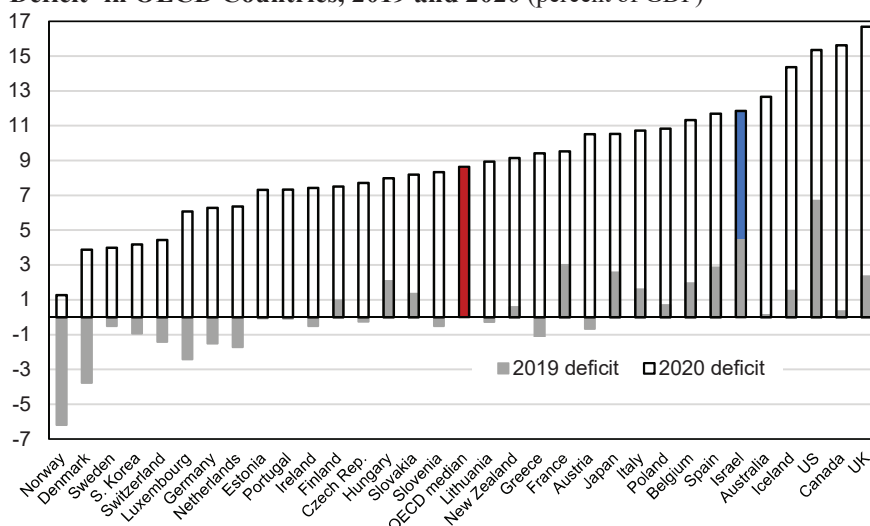
Israel's deficit increase was slightly smaller than the OECD average but its deficit level remained high because it was large in 2019.

An international comparison of fiscal aggregates shows that Israel's deficit increase in 2020 was slightly smaller than the average among OECD countries—7.4 percent of GDP, compared with an OECD median of 9 percent. Due to its high deficit in 2019, however, Israel remained in the upper portion of the distribution of member states in terms of deficit level (Figure 6.2). It bears emphasis that the deficit increase in 2020, which was due to government decisions and the automatic stabilizers that Israel and other countries use, is temporary and will probably contract gradually as the economies recover. In contrast, the treatment of the structural deficit (excluding pandemic-related expenditure) was delayed due to other priorities and overlooked

by the government in 2020 for reasons including the need to avoid fiscal tightening, which would have aggravated the impact to the economy. As soon as activity recovers, particularly in view of the increase in debt in the reviewed year, ways to narrow the structural deficit will have to be discussed again.

Figure 6.2

Deficit^a in OECD Countries, 2019 and 2020 (percent of GDP)



^a Israel's total deficit is according to the international definition and excludes the reduction of expenses financed by the sale of land.

SOURCE: OECD Economic Outlook no. 108, December 2020, and Central Bureau of Statistics.

International comparisons usually include examinations of cyclically adjusted deficits and structural deficits, in order to present the fiscal picture net of the effects of economic volatility and one-off factors. There is little point in such comparisons this year because (1) the intensity of the economic shock makes it hard to estimate its impact on the budget aggregates, and (2) every country took exceptional policy measures that will be phased out at timing that is unclear but not far into the future. For this reason, it is best to examine the underlying fiscal picture on the basis of 2019 data and not by making ad hoc adjustments to 2020 data.

The gross public debt increased to 72.6 percent of GDP in 2020, largely due to the bulging deficit.⁶ Although Israel's debt to GDP ratio had been declining since 2003, it still exceeds the median among advanced economies. Among Israel's reference countries⁷, it ranked even more poorly (Figure 6.3).

⁶ The contraction of GDP contributed 1 percentage point to the 12.6 percentage point total increase.

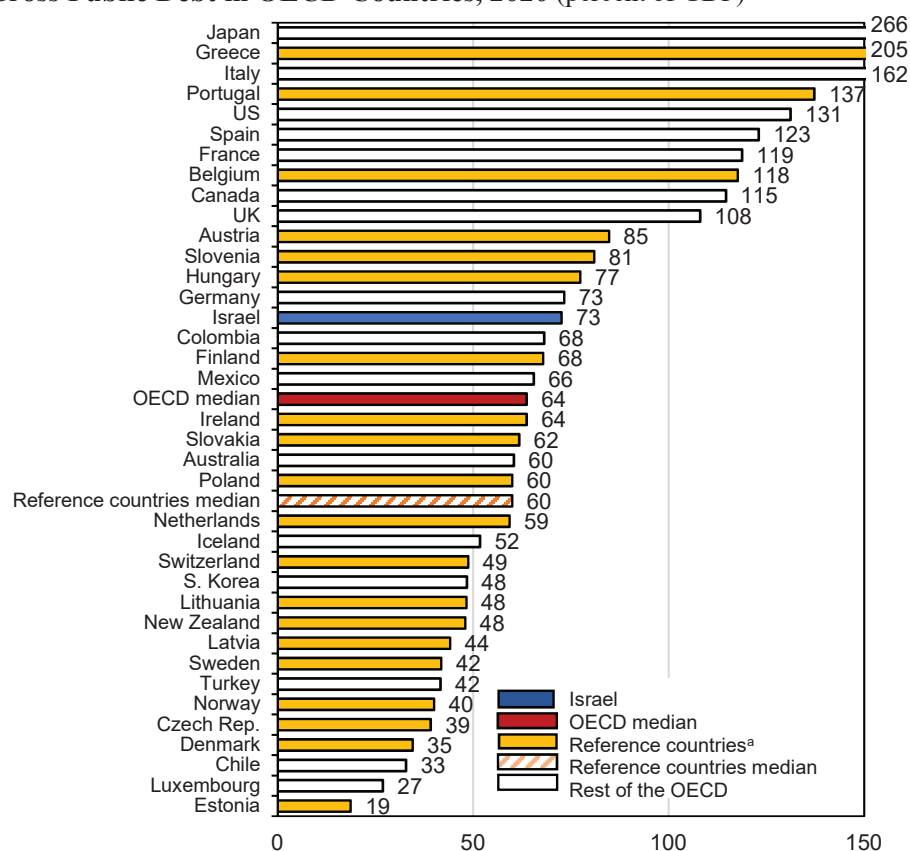
⁷ Non-G20 countries that have more than one million in population and more than USD 30,000 in per-capita GDP.

Although Israel's debt to GDP ratio had been declining since 2003, it still exceeds the median among advanced economies. Among Israel's reference countries, it ranked even more poorly.

Government policy in 2020 was different from the way governments of Israel coped with previous economic crises. In the crisis of the early 2000s, the high debt and deficit levels, steep interest rate on the government debt, and the need for a monetary policy that would forestall an upturn in inflation and foreign-currency flight forced the government to tighten its fiscal stance, mainly by trimming public expenditure, which at first exacerbated the crisis. The reforms that were introduced in 2003, despite their problematic timing in terms of the business cycle, solved structural problems, thus lowering the deficit in the longer term.

Figure 6.3

Gross Public Debt in OECD Countries, 2020 (percent of GDP)



^a The reference countries include countries that are not in the G20, have a population of more than 1 million, and have a per capita GDP of more than \$30,000.

SOURCE: International Monetary Fund's Fiscal Monitor, January 2021, and Ministry of Finance.

Thus, Israel entered the 2008 Global Financial Crisis with more fiscal space after having slashed its debt to GDP ratio and attaining a sovereign-rating upgrade. Furthermore, the government in 2009 was transitional and, for this reason, limited in its ability to respond to the crisis until a new state budget was approved in mid-year. Therefore, it decided not to cut the deficit but to allow the automatic stabilizers to operate. Thus, most deficit growth that year was due to a decline in tax revenues, countered by neutrality in public expenditure.

When the COVID-19 pandemic broke out, unemployment was at a historic low, inflation was negligible, and the current account was in surplus. The debt to GDP ratio was also historically low, as were interest rates on the government debt—for reasons including central banks' intervention in bond markets since the Global Financial Crisis. From 2016 to 2019, however, the government allowed the structural deficit to increase to a high level by international comparison⁸ and approved programs that were likely to increase it even more in the coming years.⁹

Although the deficit was high in 2020, the Israeli economy had matured enough to allow the government to finance it at lower cost than in previous crises. In addition, the nature of the impact to activity, expected to be temporary¹⁰, left room for a massive fiscal response. This approach—increasing public expenditure and issuing large-scale debt to finance it—was backed by all multinational economic institutions and rating firms due to their belief that countercyclical policy could improve debt sustainability¹¹ even in countries that had high debt to GDP ratios.¹² The sustained low yield on Israel's government bonds in 2020 reflected this outlook, and was made possible by quantitative easing (QE), in which the Bank of Israel purchased long-term government bonds on the secondary market, and by falling yields abroad as other central banks deployed parallel programs.¹³

The multinational economic institutions and rating firms backed the increased public expenditure and the issuing of large-scale debt to finance it, in the belief that countercyclical policy could improve debt sustainability even in countries that had high debt to GDP ratios.

⁸ See Chapter 6 in the Bank of Israel *Annual Report* for 2019.

⁹ See Bank of Israel, *Fiscal Survey: Trends and Outlines for Fiscal Policy in 2021 and for the Medium Term*, November 2020 [Hebrew].

¹⁰ For a comparison of the characteristics of the current crisis with previous crises in Israel, see Chapter 1.

¹¹ “In general terms, public debt can be regarded as sustainable when the primary balance needed to at least stabilize debt under both the baseline and realistic shock scenarios is economically and politically feasible, such that the level of debt is consistent with an acceptably low rollover risk and with preserving potential growth at a satisfactory level.” IMF (2013), *Staff Guidance Note for Public Debt Sustainability Analysis in Market Access Countries* (Section I).

¹² Auerbach and Gorodnichenko (2017), investigating the impact of unexpected changes in public expenditure on the debt to GDP ratio several years after their occurrence, found that an unexpected increase in public expenditure during a recession actually correlates with a decline in the debt to GDP ratio in the next four years. They trace this outcome to government support of economic activity, meaning that increasing the deficit at times of crisis improves fiscal sustainability. A. J. Auerbach & Y. Gorodnichenko (2017), “Fiscal Stimulus and Fiscal Sustainability,” National Bureau of Economic Research (No. w23789).

¹³ The Quantitative Easing was effective at lowering the long-term bond yields. See Chapter 3 in this Report for more details. The transmission of QE to yields is described in Box 3.2.

In the year as a whole, Israel's measures were commensurate with the intensity of the shock. At the beginning of the crisis, however, the fiscal-policy response was slow relative to that of other advanced economies, particularly considering the severity of the restrictions that Israel imposed on economic activity relative to other countries at that time.¹⁴ In the first morbidity wave of COVID-19, policy generally involved first aid to casualties of the lockdown by advancing unemployment benefits and grants to the self-employed. After the first wave, a series of incremental measures with no clear spending framework was approved, often with perceptible delays in making and implementing decisions that aggravated economic uncertainty. In early July, the government approved an expanded safety net that provided the unemployed and business owners with certainty until June 2021. Consequently, the second wave, in September, found the economy already equipped with a stable safety net. At this time, too, the government approved grants for all citizens irrespective of how badly the crisis had affected them. In the last quarter of the year, policy focused mainly on reallocating unutilized budgets: In lieu of a grant to employers for recalling furloughed staff, an employee retention grant (also partly taken up) and temporary accelerated depreciation for businesses were approved during the second lockdown. The government also approved partial unemployment compensation for those returning to work in a part-time capacity after lengthy unemployment, early payout of the 2021 earned income tax credit, increased grants for demobilized soldiers, and easing the terms for grants to the self-employed on the basis of unused balances from the budget item for fixed-cost grants to businesses. This reallocation of budget items helped to enhance the efficacy of support for population groups that sustained long-term harm.

An important change that improved government services to citizens between the first and second waves was more vigorous devolution of powers from the central government to other public entities.

Another important change that improved government services to citizens between the first and second waves was more vigorous devolution of powers from the central government to other public entities. The transfer of authority for COVID-19 testing to the HMOs in May allowed much more testing to be done. The HMOs also took over most of the broad vaccination system, and home hospitalization proved effective in treating COVID patients with mild to medium symptoms. In the last quarter of the year, the Minister of Finance approved an increase in transfers to local authorities beyond the indemnification for the municipal tax discount that was given through June 2021, which was allocated to the creation of local epidemiological testing arrangements, and it was decided that municipal inspection and control would be bolstered commensurate with the level of COVID morbidity. It was also agreed to transfer budgets for procurements and communication with residents to local

¹⁴ Of the twenty-five OECD countries included in the IMF database published in June 2020, Israel ranked nineteenth in the size of its budget program relative to its GDP and twentieth in the size of its extrabudgetary program. In other words, the program approved through the end of June was one of the smallest in the OECD.

authorities that rank low on the socioeconomic scale (index levels 5 and below).¹⁵ In the education system, administrative and pedagogical flexibility was expanded somewhat after summer vacation: School principals were allowed to revise the number and composition of teaching hours when the schools reopened under government restrictions. (See discussion of the education system in Chapter 7.)

After two election campaigns in 2019 that ended without the formation of a government, a new government was established in May 2020. In the absence of a government following the 2019 elections, 2020 began without an approved budget and a restraining interim budget that was about 0.8 percent of GDP (about NIS 12 billion) lower than the statutory expenditure limit. The lack of a regular budget restricted ministries' workplans and required them to seek permission from exceptions committees for routine operations and *a fortiori* new ones, amid uncertainty about when they would be approved if at all. In addition, the procedures that surround an interim budget limit long-term contracting due to the provisionality of this budget. They also set spending priorities in accordance with existing contractual commitments. Thus, for technical reasons, activities that are outsourced to NGOs and firms are cut back even though the government funds them regularly. The macroeconomic uncertainty due to the COVID-19 crisis escalated due to the transitional governments' lack of authority to make meaningful reforms and set long-term targets. Despite the lack of consensus around the Budget Law for 2020–2021, the broad coalition assembled after the March 2020 elections made it easier for the government to amend basic laws and ordinary statutes by means of ad hoc directives in order to fund pandemic-related programs via a separate provisional budget and to mitigate the fiscal tightening that the rules of the interim budget imposed in 2020. The passage of a regular budget law was deferred from August to December due to the lack of consensus within the government, and when the budget was not passed in December, the Knesset was dissolved and another round of elections, the fourth within two years, was scheduled.

After the Knesset was dissolved for failing to pass a budget for 2020–2021, the government engineered the approval of a permanent amendment to the Budget Foundations Law that expanded the ceiling of the interim budget in order to prevent the additional tightening that this budget probably would have imposed until a regular budget could be legislated, in June 2021 at the earliest. Although the budget framework was increased almost to the expenditure ceiling, the interim budget still lacks important traits of an ordinary budget, including deficit targets that would establish a framework in addition to the spending limit, an economic program (expressed in an Economic Arrangements Law) that would aggregate the measures that are needed to attain the budget targets, a systematic working process including

Although the budget framework was raised almost to the expenditure ceiling, the interim budget still lacks important traits of an ordinary budget, including deficit targets, an Arrangements Law, public transparency of budget priorities, and autonomous management of ministries' budgets.

¹⁵ For recommendations on further improvement in devolving powers to local authorities, see Ariel Finkelstein, "All the Reasons to Transfer Powers to Local Government—In Ordinary Times and in the Coronavirus Era," Israel Democracy Institute, November 8, 2020, <https://www.idi.org.il/articles/32785> [Hebrew]. Such recommendations have been around for years. See, for example, E. Razin and A. Brender, "Local Government Reform: Decentralization for the Fit and Accessorization for the Backward," Israel Democracy Institute, 2004 [Hebrew].

detailed planning and discretion in distributing the budget among the government's policy goals, public transparency reflected in parliamentary discourse over budget priorities, and management of ministries' budgets by the ministries instead of by the Accountant General at the Ministry of Finance. The dissolution of the Knesset also made it harder to advance structural reforms that would help to improve general-government efficiency and make the economy more productive.

2. FISCAL POLICY MEASURES TO COPE WITH THE COVID-19 CRISIS IN ISRAEL

a. Mid-year revisions of budget limits

The COVID-19 exceptional budget allocations were first legislated as part of the Basic Law: The State Economy to contain a provisional budget increase in April 2020, and were enlarged five times afterward. Only government programs for 2020 were budgeted at first. Subsequently, however, an allocation was added for 2021 and was enlarged twice in the course of 2020. The allocations were separated from the rest of the budget en bloc and were funded by debt and not by tax hikes in order to serve solely for their intended purposes: reinforcing the healthcare system and the civilian government ministries that helped to cope with the COVID-19 crisis; arranging transfers to households and support for the jobless, workers on furlough, the self-employed, and businesses; expediting infrastructure projects; and budgeting the risk imposed by state guaranteed funds that issued business loans under preferential terms.

The use of exceptional budget allocations to fund crisis-related expenses made it clear to the markets and the public that the government's commitment to increased spending on account of the crisis is temporary. For example, in its "Numerator" document, released in March 2021 and presenting the government's financial undertakings on the basis of existing decisions, the Ministry of Finance estimated that direct spending on account of the COVID-19 crisis will be negligible after 2021.¹⁶ The advantage of exceptional budget allocations is that they preserved the market's confidence in Israel's fiscal policies, amassed over a period of years, during the crisis as well. Given the intensity of the crisis and the extent of the solutions that it required, an exceptional budget allocation would have been needed irrespective of the kind of budget—regular or interim—in effect. Importantly, however, it is an exceptional instrument that is meant for emergencies. Recurrent budgeting of new needs using such allocations instead of reallocating existing resources may diminish the government's fiscal credibility.

The pandemic crisis was accompanied by acute uncertainty due to the inability of governments around the world to control and predict its spread, and the economic crisis that it brought in its wake. Uncertainty about the duration of the health crisis impeded

The use of exceptional budget allocations to fund crisis-related expenses made it clear to the markets and the public that the government's commitment to increased spending on account of the crisis is temporary. Recurrent budgeting of new needs using such allocations instead of reallocating existing resources may diminish the government's fiscal credibility.

¹⁶ Ministry of Finance, *Multiannual Budget Plan for 2022–2024*, March 2021 [Hebrew].

policy planning. In most countries, policy was revised during the year and fiscal rules were suspended in accordance with developments. The size and composition of the “COVID-19 budget” changed frequently and in many ways, burdening the regular monitoring of the pace of program performance. The exceptional allocations were expanded from NIS 50 billion in April to NIS 64 billion in June and NIS 94 billion in July, finally leveling off at NIS 97 billion in September.¹⁷ The safety net approved in July 2020 was meant to systematically reduce the need for recurrent solutions and to engender confidence and certainty on the part of the public.¹⁸ Even after it was unveiled, however, the government approved three additional allocations: for funding of the universal grant program, preparedness of the education system for the 2020/21 school year, and relaxation of the eligibility terms for the safety net in 2020–2021. In October, the frequent increases of the framework stopped and the composition of the COVID-19 budget was adjusted to the pace of performance of the programs, so that unutilized sums were reassigned to new government programs (Figure 6.4).¹⁹ In the year as a whole, NIS 80 billion was spent and NIS 5 billion in new contracts were concluded. The under-utilized items were added to the COVID-19 allocation for 2021, which was originally budgeted (in July) at NIS 42 billion and now stands at NIS 71 billion (including additions).

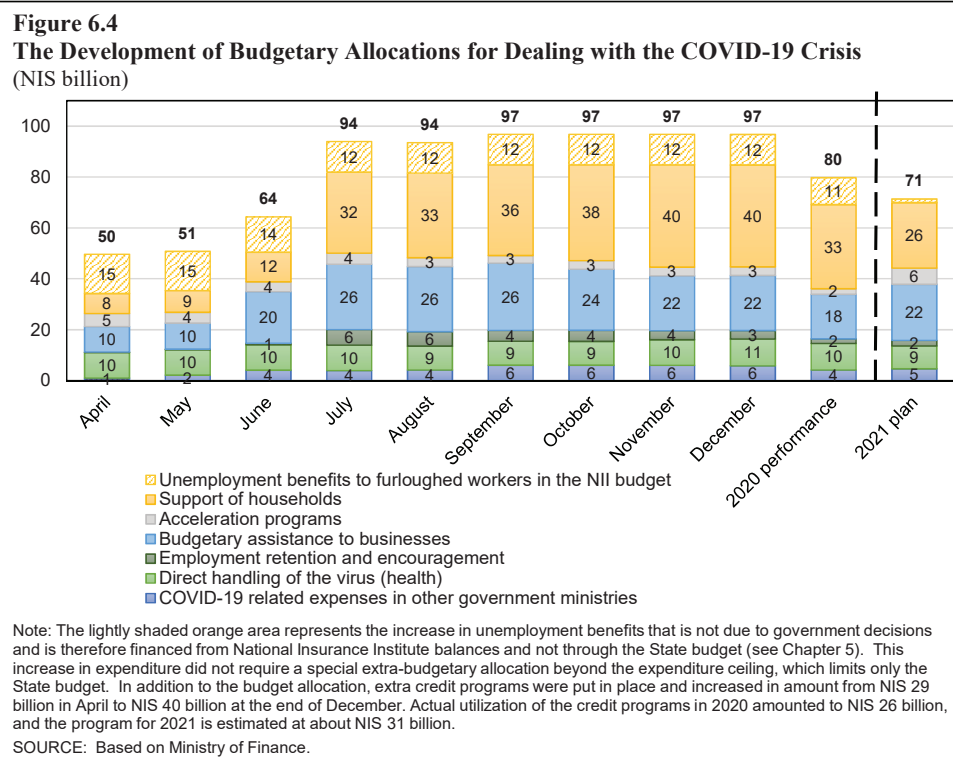
In addition to the COVID-19 budget allocations, the government revised the interim budget rules in two Basic Laws: The State Budget and Foundations of the Budget. In September, the interim budget framework for 2020 was expanded by NIS 11 billion to fund expenditures unrelated to the pandemic, and in December—after the Knesset was dispersed—legislative revisions, such as separating the debt-servicing and the business-enterprises budgets from the interim-budget base, were ratified permanently. These amendments were warranted irrespective of the crisis, due to the distortion that these budget items create in the government ministries’ monthly spending trajectory

¹⁷ The sums include the share of National Insurance but exclude extrabudgetary programs. (For a breakdown, see Figure 6.4.)

¹⁸ The programs approved in the summer, and their budget, are elaborated in minute detail in Government Resolution 326 of August 16, 2020.

¹⁹ Reallocation took place throughout the period. In August, the government decided to budget NIS 1.75 billion to prepare the education system for the 2020/21 school year, whereas the NIS 1.2 billion budget for 2019/20, which was not fully utilized, was lowered by NIS 0.7 billion and the vocational-training budget was trimmed by NIS 0.3 billion. In late September, the safety net for 2020 was expanded by NIS 2.5 billion to fund the employee-retention program in September–October, move up the earned income tax credit payment to 2020, and broaden eligibility for a fixed-costs grant for businesses that suffered a 25–40 percent decline in revenues. Conversely, an employment-promotion program originally budgeted at NIS 5.5 billion was cut by NIS 2 billion. The budget for this program was reduced by another NIS 1 billion in November–December and the health budget was raised by the same amount. In October–November, the budget for support for the self-employed was enlarged by NIS 4 billion in cumulative terms and fixed-cost items were reduced correspondingly (in May–June 2021). In December, a grant was paid to workers who remained jobless for a protracted period, countered by cutting the budget for the unemployment measures announced as part of the safety net due to underutilization. Similarly, grants were distributed to demobilized soldiers, and the overbudgeting of early withdrawal from the Demobilized Soldiers Fund was reduced.

when the budget is limited to one-twelfth of its annual size per month.²⁰ It was also determined that the COVID-19 budget allocations would not be subject to the limits established by the interim budget framework, similar to budgeting the allocations above the spending ceiling in an ordinary budget year.



On top of the technical changes in interim budget's definitions, the interim budget framework for 2021 was increased by NIS 20 billion. According to the amended Foundations of the Budget Law, the spending limit of an interim budget should be based on the statutory expenditure ceiling in the previous year raised by the average growth rate of population at the beginning of the interim-budget year.²¹ The amendment enlarged the interim budget framework for 2021 from NIS 400 billion to NIS 420 billion, and set the statutory spending limit at NIS 426 billion. In addition, the rate of the NGO support budget that could be apportioned was increased, and

²⁰ For elaboration on the effect of the monthly path of debt servicing, see A. Barr (2020), "The Interim Budget Mechanism and the Government Program for Treatment of the COVID-19 Crisis—Analysis of Proposed Changes," Knesset Research and Information Center [Hebrew].

²¹ The original government-sponsored bill included an increase linked to CPI inflation in the previous three years (0.6 percent). The Knesset Finance Committee, however, requested a revision that would peg the increase to the rate of population increase in those years (1.9 percent). This change by the committee set the budget ceiling at NIS 420 billion, rather than NIS 414 billion in the original government's bill.

dispensations relating to spending authorizations and transfers of surpluses in the course of an interim-budget year were approved. These amendments enabled a sizable across-the-board de facto increase in the interim budget and made it less restrictive than the legislator had originally intended.

The government's conduct in the reviewed year emphasizes the trade-off of flexibility versus stability and credibility—two policy principles that, while important and desirable, sometimes clash. Institutional flexibility allowed the transitional government to amend Basic Laws in order to cope with an unprecedented economic and health crisis by allocating resources to the cause. This very flexibility, however, carried the risk of a blow to fiscal credibility by relaxing the rules that serve policymakers as long-term anchors. The exceptional action that Israel took in response to the emergency was essential and resembled that of the other developed countries. However, the spillover of these sweeping changes into the domains of the regular budget, which had been repeatedly deferred for lack of political consensus within the government, underscores the risks that this flexibility brought about. The conduct surrounding the approval of the regular budget showed more of the same: decision-making at the last moment and without comprehensive public discourse, and expanding the interim budget framework without grounding this move in transparent priorities or a long-term strategy.

Although it was advantageous from a short-term economic standpoint to lift the restrictions on government ministries' operations due to the unusual circumstances of the crisis, from institutional and long-term perspectives the ex-post revisions to the legal framework—including Basic Laws—that incentivizes the government to pass a proper budget create the potential for allowing ongoing conduct without an approved budget or for amending budget limits even with no emergency in progress. Such a phenomenon would amplify uncertainty, especially at a time when the economy needs stability. One of the most significant challenges that the next government will face is to converge toward a defined fiscal framework and put together a credible multi-year program of support for the economy until it reverts to full employment, without subverting Israel's fiscal sustainability.²²

b. Expanding the economic safety net

Unlike economic crises that are due to a slump in aggregate demand—in which countercyclical policies are typified mainly by boosting public expenditure—the exceptional and temporary shock created by a global pandemic, and not by structural problems in the economy, focused the role of economic policy on supplying liquidity and helping individuals and businesses that had to halt activity, by providing transfer

Although it was advantageous from a short-term economic standpoint to lift the restrictions on government ministries' operations due to the unusual circumstances of the crisis, from an institutional perspective the revisions made to the legal framework that incentivizes the government to pass a proper budget create the potential for allowing ongoing conduct without an approved budget or for amending budget limits even in ordinary times.

²² An example of this risk came up in S&P's affirmation of Israel's sovereign credit rating in late October. The rating agency noted that despite its stable rating outlook, downward pressure may build up if, beyond the pandemic-related measures, Israel fails to put together a medium-term consolidation program and if the debt continues to rise relative to the agency's forecast, which saw it leveling off at 80 percent of GDP.

payments and subsidies. Their purpose is to bridge the period in which the economy is shut down in order to preserve human and physical capital, help individuals to smooth their consumption despite the temporary loss of income, and prevent the inefficient loss of jobs.²³ Consequently, measures taken during activity restrictions should be temporary and short-term, relaxed between lockdowns and phased out gradually after the restrictions are removed as the negative output gap is closed. Since the health shock and the supply-side restrictions have a beginning and an end—even though the time of the latter is not foreknown—the policy goal in 2020 was to temporarily restrict activity while at the same time preventing graver damage to aggregate demand²⁴ and minimizing the scarring due to the blow to the economy, making a rapid recovery possible once the pandemic is contained.

At the beginning of the crisis, a rapid and broad response by means of simple mechanisms was needed in order to give households confidence. The longer the crisis persisted, however, the more the government had to make adjustments in order to deliver optimum relief to those most in need of it.

The COVID-19 crisis was typified by much heterogeneity in the extent of its damage to the economy. (See Chapters 2, 5, and 7.) For this reason, combined with the government budget constraint, an effective economic policy should focus the aid on those most affected as far as possible.²⁵ However, the authorities' lack of full information impairs their ability to deliver the most effective solution—a phenomenon that accompanies government support mechanisms even in ordinary times but stood out all the more in 2020 due to the speed and magnitude of the crisis. Therefore, if at the beginning of the crisis a rapid and broad response that would use simple mechanisms to give households confidence was needed²⁶—even if it meant providing grants to those unaffected by the crisis as well—then the longer the crisis persisted, the more the government had to make adjustments in order to deliver optimum aid to those most in need.

In July, the government decided to disburse universal grants to every citizen at a budget cost of NIS 6.5 billion. The marginal utility of this move was limited, particularly because the restrictions were very mild that month relative to those during the rest of the year, and because by then the safety net for those harmed by the crisis had already broadened considerably. The declared purpose of the universal

²³ V. Guerrieri, G. Lorenzoni, L. Straub, & I. Werning (2020). “Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?” National Bureau of Economic Research, (No. w26918).

²⁴ A. J. Auerbach, Y. Gorodnichenko, & D. Murphy (2020). “Fiscal Policy and COVID-19 Restrictions in a Demand-Determined Economy,” National Bureau of Economic Research (No. w27366); P. O. Gourinchas, S. Kalemli-Özcan, V. Penciakova, & N. Sander (2020). “COVID-19 and SME Failures” National Bureau of Economic Research, (No. w27877).

²⁵ Universal transfers in the middle of a lockdown are likely to boost personal savings and not employment. Therefore, they are relatively ineffective. See Bayer et al. (2020), “The Coronavirus Stimulus Package: How Large is the Transfer Multiplier?” NBER WP; Chetty et al. (2020), “The Economic Impacts of COVID-19: Evidence From A New Public Database Built Using Private Sector Data”; Wu et al. (2020); “Consumption Vouchers During COVID-19: Evidence from E-Commerce”; Alstadsæter et al. (2020), “Norwegian and US Policies Alleviate Business Vulnerability Due to the Covid-19 Shock Equally Well.”

²⁶ As in paying universal grants ahead of the Passover holiday to households with children, older adults, persons with disabilities, and recipients of old-age, income assurance, disability, and alimony benefits.

grants was to stimulate private consumption, but in the absence of the ability to distinguish in real time between high income individuals (or those with more assets and liquid resources) and those with less income and wealth, many grants went to households that had not reduced their consumption—except in contexts related to the health restrictions that the government had imposed (see Chapter 2.) Feldman and Heffetz (2020) found in an online survey that the grants encouraged only one-fourth of households to consume more in the short term, while the others used it mainly to increase their private savings (including payback of debt) or donated it to others.²⁷

Alongside the relaxation of the terms of eligibility for unemployment compensation and expansion of aid to the jobless (as elaborated in Chapter 5), an expanded safety net was even more important for the self-employed, who in most countries are ineligible for unemployment compensation except in special cases due to difficulty of monitoring their earning capacity.²⁸ In the initial relief plan, self-employed persons who declared a loss of at least 25 percent of turnover received grants of 65 percent of their average monthly income up to NIS 6,000.²⁹ Farther on, eligibility was extended to employees who had a controlling stake in a closely held corporation.³⁰ The grant was increased to 70 percent up to NIS 10,500³¹, and an increase was given to those with incomes below NIS 300,000 per year. In the Economic Safety Net program that was approved in July, the mechanism of payments to the self-employed was systematized so that once every two months, self-employed persons whose turnover in the most recent two months fell by at least 40 percent relative to the year-earlier period received a benefit. The monthly payment was set at 70 percent of the year-earlier average monthly income up to NIS 15,000 per bimonthly installment. In December, the government approved a nonrecurrent payment for self-employed persons and small businesses that suffered lengthy impairment.³²

In addition to these disbursements, which offered the self-employed and small-business owners a substitute for unemployment compensation, businesses themselves received payments to compensate for accrued losses on account of fixed costs that they had to cover while their activity was restricted. These grants, based on mechanisms previously invoked to compensate businesses affected by military operations,

²⁷ Naomi E. Feldman and Ori Heffetz, “A Grant to Every Citizen: Survey Evidence of the Impact of a Direct Government Payment in Israel” (December 28, 2020), available at SSRN: <https://ssrn.com/abstract=3752364>.

²⁸ Eleven OECD member states give the self-employed access to unemployment compensation. Often, however, this is done via voluntary arrangements that require the self-employed to close their businesses and seek an employee post. Recent years have seen more and more discussion of extending unemployment compensation mechanisms to the self-employed. France and Spain introduced such arrangements in 2019.

²⁹ For details on the terms of the first installment of payments to the self-employed, see: <https://www.gov.il/he/departments/news/sa020420-1> (in Hebrew).

³⁰ Owners of small businesses in which they are also employees.

³¹ https://www.gov.il/he/departments/news/sa240420_0 (in Hebrew).

³² A business with a 2019 turnover in the NIS 18,000–NIS 300,000 range that lost at least 25 percent of its activity between March–December 2019 and March–December 2020 received NIS 3,000–NIS 9,000, commensurate with the extent of the decline in revenue.

were calculated on the basis of the business's periodic Value Added Tax reports in consideration of their fixed costs. Businesses with annual turnover below NIS 20 million were eligible for the first installment. The program was later extended to larger enterprises provided they had taken at least a 60 percent hit. The terms of payments under the Economic Safety Net framework for May 2020–June 2021 are summarized in Table 6.2. Additional benefits for businesses included state-guaranteed loans, a discount on municipal tax, automatic extension of business licenses, relaxation of compulsory payment deadlines, accelerated income tax and VAT refunds, and various subsidies from the Small and Medium Business Agency. Businesses also received grants for recalling workers who had been furloughed (irrespective of their decline in turnover), the retention of staff during the second lockdown only (contingent on how badly the business was affected), and a grant for medium and large businesses for protracted damage.³³

Table 6.2
Details of the fixed-costs grant as part of the "Economic Safety Net" program

	Small businesses (NIS 18,000–300,000)	Medium businesses (NIS 300,000–1.5 million)	Large businesses (NIS 1.5 million–400 million)
Minimum impact on revenue	Decline of at least 25% ^a in sales revenue	Decline of at least 25% ^a in sales revenue	According to annual revenue: Up to NIS 100 million: decline of at least 25% ^a NIS 100–200 million: Decline of at least 60% NIS 200–400 million: Decline of at least 80%
Amount of grant per bimonthly installment	NIS 3,000–6,000 depending on annual revenue in 2019	3–15% of the revenue in the corresponding period in 2019, depending on the rate of decline in revenue.	The fixed expenses coefficient in the revenue ^b (up to 30%), multiplied by the revenue in the corresponding period 2019, multiplied by 0.1–0.5 depending on the rate of decline in revenue.
Grant ceiling	NIS 6,000	NIS 500,000	NIS 500,000

^a Originally, the condition was a decline of 40% in revenue, but it remained valid only in the May–August installments. From September, the group of eligible recipients was broadened to include those who had experienced a decline of 25% in revenue due to the second lockdown, and this leniency was extended every two months, even when there was no lockdown.

^b The rate of sales revenue reflecting the business's fixed costs - those that could not be reduced even when there was less activity or activity was interrupted. These include, for instance, rent, financing expenses, and so forth. This coefficient is calculated according to the formula:

$$1 - \frac{(\text{wage costs of furloughed workers} + \text{inputs}) \times 0.9}{\text{monthly turnover}}$$

SOURCE: Ministry of Finance.

³³ For businesses with NIS 300,000–NIS 400,000 in turnover in 2019 that qualified for three or more relief grants for participation in expenses disbursed by the Israel Tax Authority. This payment was set at 60 percent of the average fixed-costs grant that the business had received thus far on account of eligibility periods in 2020, and was capped at NIS 50,000.

The expansion of the government's safety net was a crucial move that made its greatest contribution to the most vulnerable households and businesses. The absence of a preexisting mechanism and the urgency that characterized the relief measures, however, led to difficulties in designing and implementing the various policies.³⁴ First, policymakers' response to the start of the pandemic was slow at first. From March to July, support was expanded in several short-term installments. It took until July to announce the safety net program that established terms of eligibility for unemployment compensation and payments to businesses and the self-employed through June 2021. Second, the criteria decided upon for the transfer payments did not fully cover everyone affected by the crisis³⁵, forcing the government to make additional legislative changes in mid-year to include other groups among those eligible. Third, the sheer number of unemployed and benefit claims led to technical difficulties in the National Insurance, Employment Service, and Tax Authority systems, impeding the implementation of policy at the onset of the crisis. Finally, the multiple authorities that citizens had to contact leads to low takeup of entitlements even in ordinary times, and even more so during times of crisis.³⁶

The delays and difficulties in rolling out the safety net underscore the importance of automatic stabilizer mechanisms, particularly the kind that expand the safety net when crisis strikes and retract it afterward. An automatic mechanism has several advantages over discretionary measures. First, the time it takes to design, legislate, and implement relief programs exacerbates uncertainty, in turn slowing economic activity³⁷, and impairs the efficacy of government policy. Strengthening the safety net insures individuals against macroeconomic shocks that are beyond their control and mitigates precautionary saving even in ordinary times.³⁸ Second, policy measures that are applied at the government's discretion without synchronization with

³⁴ In 2020, the grants program was based on the Property Tax Fund mechanism that provides compensation to businesses. It took time, however, to scale this program from a short-term mechanism limited to certain geographical areas up to an inclusive and sustained nation-wide one.

³⁵ Examples were businesses newly opened in January–February 2020 and women who were on maternity leave in 2019. For them, the extent of harm to turnover could not be compared with the parallel months during the previous year.

³⁶ The jobless had to sign up with both the Employment Service and National Insurance; businesses had to enroll with the Small Business Authority to receive the municipal tax discount and the employee retention grant; they also had to apply to the Tax Authority for the fixed-costs grant and to National Insurance about placing staff on unpaid leave. Businesses entitled to the employment stimulus payment had to report to the Employment Service about their employees' return, in addition to the employees' own reporting; and so on.

³⁷ A. Fatás & I. Mihov (2003), "The Case for Restricting Fiscal Policy Discretion," *The Quarterly Journal of Economics* 118(4): 1419–1447, IMF (2015); "Can Fiscal Policy Stabilise Output?" in *Fiscal Monitor*, April 2015: "Now is the Time: Fiscal Policies for Sustainable Growth."

³⁸ Baker et al. (2016), analyzing press clippings since 1985 in the United States and twelve other developed countries, find that uncertainty about policy leads to a decline in investment, output, and employment: S. R. Baker, N. Bloom, & S. J. Davis (2016), "Measuring Economic Policy Uncertainty," *The Quarterly Journal of Economics*, 131(4): 1593–1636. Fernández-Villaverde et al. (2015), using temporary unexpected shocks to US fiscal policy, find that declines in capital investment and production below potential levels are the main transmission mechanisms to impaired growth. J. Fernández-Villaverde, P. Guerrón-Quintana, K. Kuester, & J. Rubio-Ramírez (2015), "Fiscal Volatility Shocks and Economic Activity," *American Economic Review*, 105(11): 3352–84.

The lessons of the current crisis should include the need to devise safety net mechanisms activated by economic triggers, such as the unemployment rate, that would be implemented without delay and phased out automatically when no longer necessary.

macroeconomic indicators may be terminated prematurely, before business activity gains enough strength, or may remain in effect even after the economy has proved that it no longer needs them.

The lessons of the current crisis should include the need to devise safety net mechanisms activated by economic triggers, such as the unemployment rate, that would be implemented without delay and phased out automatically when no longer necessary. Policymaking in a noncrisis situation is also likely to be more successful in terms of planning and communication with the public. The optimal application of policy should include early deployment that leaves policymakers with discretion in tailoring the parameters of the system to the type of crisis instead of building such a system *ex-nihilo* each time. This advantage stood out in the tendency of most developed countries to activate existing labor market relief mechanisms at the onset of the crisis (as described in Chapter 5), basing themselves on existing institutional frameworks and adjusting parameters such as payment levels and terms of eligibility.

Establishing a government information system that all relief entities can use, possibly as part of the government's digitization project³⁹, may allow these entities to respond quickly by testing all relevant criteria for the provision of focused relief. In addition, it would be worth setting up a one-stop shop where all regulatory information would appear in language that the target population can understand. There, citizens may fill out and submit all requisite forms and communicate directly with the relevant offices, making the support system user-centered and no longer forcing them to apply to each entity separately.

c. Increasing public expenditure on health

Israel's healthcare services are characterized by universal access and good results by international comparison, even after controlling for Israel's young age composition relative to most developed countries.⁴⁰ However, the system faces several challenges that endangered its capacity as COVID-19 spread.

The low capacity of the inpatient system, particularly its internal medicine departments, commands news headlines every winter as excess demand mounts due to the lack of budgeted hospital beds in these departments and in continuing-care institutions along with the lack of home hospitalization alternatives.⁴¹ When the international indicators are equivalized to the age composition of the population⁴²,

³⁹ See Government Resolution 260, July 26, 2020.

⁴⁰ OECD (2019), *Health at a Glance*, pp. 25 and 35.

⁴¹ See recommendations of the Committee on Inpatient Departments, also known as the Tur-Caspa Committee after its chair.

⁴² The population is equivalized on the basis of the age composition of each country and a capitation formula that determines the cost of healthcare services for each age group. For more on this methodology, see Eran Politzer (2013), "Health Expenditure in Israel—An International Comparison of Demographic Factors and Cost Structures," in Bank of Israel, *Recent Economic Developments* no. 135, June 2013, pp. 14–20.

it is found that the number of nurses and acute-care beds per thousand population in Israel is low by international comparison (Figure 6.5).⁴³

The weaknesses of the inpatient system were laid bare even more in 2020 as the large scale of morbidity amplified concerns about the inability to respond optimally to the ill, prompting the government to impose more stringent social distancing restrictions than those of other countries (see Chapter 1). When Israel's first case of COVID-19 was diagnosed in late February 2020 and active cases climbed to 200 within 22 days, the government imposed the first general lockdown due to concern about the capacity of the inpatient system.⁴⁴ The arguments in favor of the second lockdown were also based on the full occupancy of COVID-19 wards in the northern district. In the third wave, the COVID-19 departments in Jerusalem reached full capacity despite preparations during the year, forcing many patients to move to hospitals in other districts.

As morbidity escalated rapidly in early March, the healthcare system was granted a NIS 10 billion budget, reflecting a nonrecurrent 27 percent increase in the Ministry of Health budget.⁴⁵ The added increment was initially meant for the purchase of protective equipment for medical teams, ventilation machines, and the establishment of a COVID-19 testing system. As time passed, the capacity of the testing system was increased from several thousand tests per day during the first wave to around 100,000, the hospitals were given more personnel slots (600 doctors and 2,000 nurses), alternative inpatient facilities ("COVID-19 hotels") were deployed, and, from late December, vaccines were acquired and delivered to Israel (see details in Figure 6.6). COVID-19 health budget performance at the end of the year was 113 percent. An itemized analysis of budget items shows that most of expenditure went for short-term coping with the pandemic. Another portion was used to indemnify medical institutions for financial losses occasioned by the disruption of routine activity and adjustments to the COVID-19 restrictions. Four percent of the budget was earmarked for temporary increases in personnel slots at hospitals, geriatric and psychiatric institutions, and laboratories. Only 11 percent of the incremental budget was designated for opening temporary COVID-19 wards, construction projects, and purchasing medical instrumentation that would enhance the healthcare system's long-term preparedness as well.

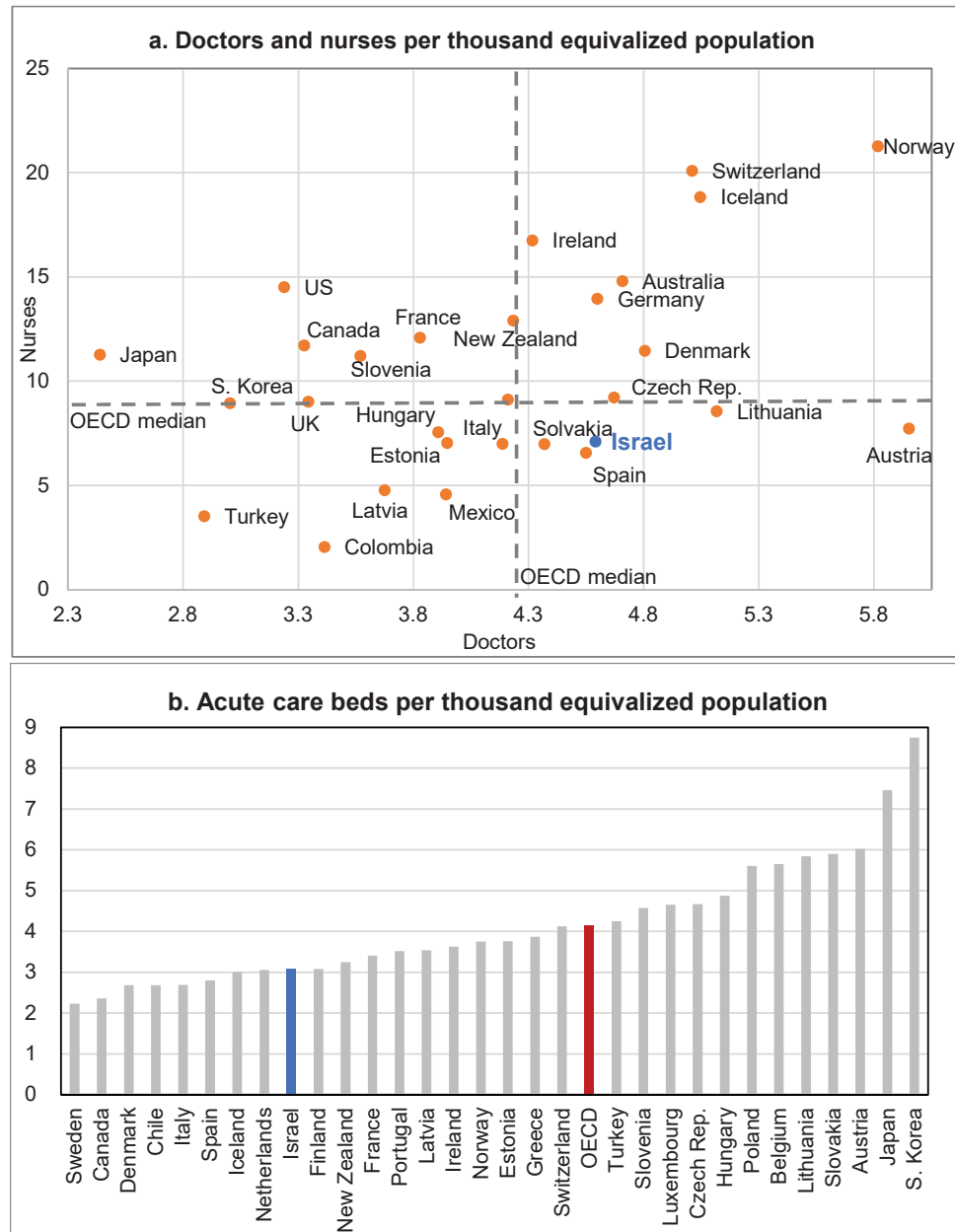
As morbidity escalated rapidly in early March, the healthcare system was granted a NIS 10 billion budget—a nonrecurrent 27 percent increase in the Ministry of Health budget.

⁴³ The ratio of doctors per thousand population (age standardized) is relatively high in Israel but older doctors (60+) and women doctors—two groups of below-average labor input—have accounted for an increasing share of the physician workforce in recent years (Aviad Tur-Sinai et al., "Doctors in Israel: Trends in Their Characteristics and Training," Taub Center for Social Policy Studies, *State of the Nation*, December 2020.) According to the OECD, Israel in 2018 had the highest share of older (65+) doctors in the member states and a below-average rate of women doctors.

⁴⁴ https://www.gov.il/he/departments/policies/dec4891_2020

⁴⁵ This Ministry of Health budget is the net budget, which is the total excluding revenue-dependent expenditure and business enterprises (including government hospitals). Most of the extra increment was earmarked for the general hospital system but some was allotted to geriatric and psychiatric institutions as well.

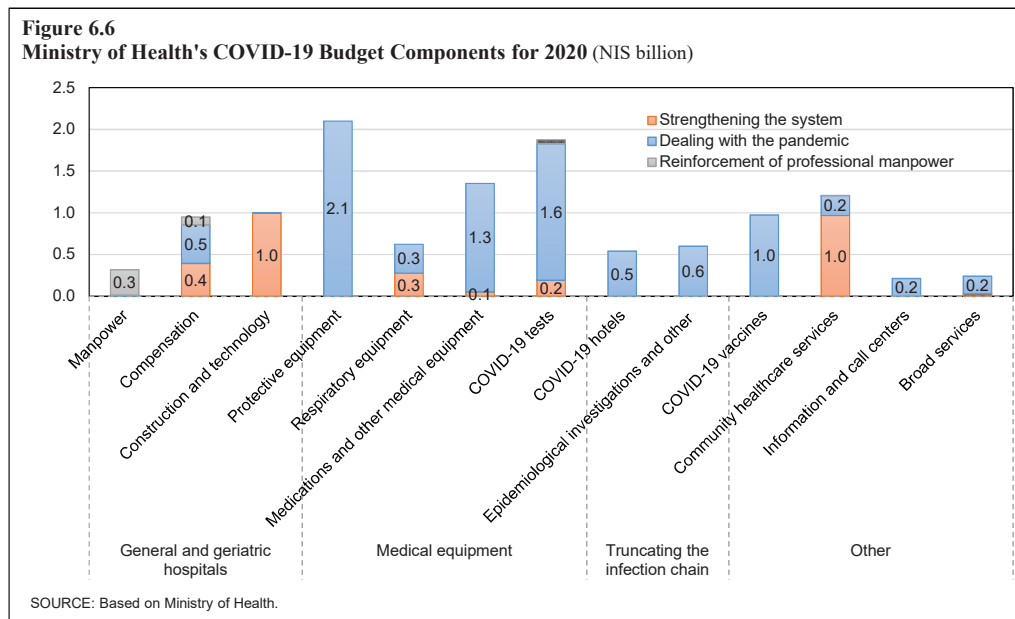
Figure 6.5
International Comparison of Healthcare System Resources, Equivalized to the Population's Age Composition^a, 2018



^a The equivalization of the population is based on the age composition in each country and on a capitation formula that sets out the cost of healthcare services for each age group. For the methodology, see Eran Politzer (2013), "Health Expenditure in Israel - An International Comparison of Demographic Factors and Cost Structure" in Recent Economic Developments, 135, Bank of Israel.

SOURCE: Based on OECD.

The resilience and flexibility of the Israeli healthcare system were challenged in 2020. These characteristics are important for the care of COVID-19 patients, but also for the system's ability to continue providing routine services. During the first wave of morbidity, for example, the Ministry of Health ordered a halt to elective activity in hospitals due to the need to save resources for urgent cases only. Although the most extreme scenarios that the Ministry braced for did not come to pass, the quarantining of large numbers of healthcare personnel affected the way hospital staff was managed, and the added temporary posts were put to full use.



Unlike a pandemic—an ongoing event for which preparations can be made in midstream—emergencies such as earthquakes arrive in one stroke and may place the inpatient system's ability to deliver in even greater danger. The system has an insufficient safety cushion even in ordinary times. Its unaddressed structural problems worsened due to the duration of the pandemic and the burnout of medical staff. To make the temporary reinforcement permanent, the inpatient system needs ongoing budgeting on the basis of parameters that are transparent and standard among all participants, instead of financing various entities' structural deficits by means of ad hoc support programs. It is also recommended to make the temporary personnel slots permanent, expand the academic training of nurses, add some of the incremental beds from the COVID-19 wards to the regular inventories of internal medicine departments, reinforce the intensive care units, and build medical buildings in a way that will give

Unlike a pandemic—an ongoing event for which preparations can be made in midstream—emergencies such as earthquakes arrive in one stroke and may place the inpatient system's ability to deliver in even greater danger.

the inpatient system flexibility (e.g., temporary departments, some of which were set up in hospital parking lots).⁴⁶

d. Adjustment of the education system during the crisis

Most countries shut down their education systems during the first wave of morbidity due to lack of preparedness. Following the summer vacation, however, many of them made adjustments to avoid further shutdowns. In contrast, Israel chose the option of closing the schools and switching to distance learning during the subsequent waves of the pandemic.⁴⁷ Distance learning performance was suboptimal⁴⁸ and the implications of its drawbacks may affect students in the long term as well (see Chapter 7). The budget increment that the Ministry of Education received during the first lockdown was only NIS 88 million.⁴⁹ It was expanded only in June to NIS 1.2 billion for what remained of the 2019/20 school year.⁵⁰ In August, another budget of NIS 4.2 billion was allotted for the 2020/21 year. Ultimately, the Ministry's "COVID-19 budget" came to NIS 2.4 billion in 2020 and NIS 3 billion more in 2021. The increment was earmarked mainly for promoting digitization in schools, equipping students from weak socioeconomic backgrounds with computers and tablets for use in distance learning, temporary extra hiring for capsule learning in young age groups, and extension of the school year by three weeks up to fourth grade (a summer-vacation school program and afternoon care programs) to compensate for lost days of study during the first lockdown.

Difficulties in implementing the new procedures⁵¹ and delays in buying the computers, due to large orders placed all at once amid surging global demand, led to the underperformance of the "COVID-19 budget" for 2020, and its NIS 0.6 billion surplus was rolled over to 2021. Half of the performed budget was used for additional hiring, with the rest going for improvements in digitization and the purchase of computers. Additional changes in the education system were carried out from September onward at no budget cost. These included giving school principals more administrative and pedagogical flexibility, centralizing curricular contents in all grades (leading to a 10–30 percent cutback in quantity of materials), and reducing the number of external matriculation exams to only six.

⁴⁶ For further recommendations on this topic, see Israel Democracy Institute (2020), "Strengthening Healthcare-System Preparedness for Crises," the Eli Hurwitz Conference on Economics and Society, <https://www.idi.org.il/media/15311/health.pdf>

⁴⁷ From September to February, the Israeli education system was closed on 40 percent of study days, compared with an average of 14 percent in the OECD countries. (For a breakdown, see Chapter 7.)

⁴⁸ See Sefi Bahar, "Preparedness for Distance Learning at the Student and School Levels—Insights from PISA 2018 and the Household Expenditure Survey," Bank of Israel Research Department, Annual Report 2019 Selected Studies (June 2020) [Hebrew].

⁴⁹ See Government Resolution 5013, April 24, 2020.

⁵⁰ See Government Resolution 326, August 16, 2020.

⁵¹ For example, some of the original budget for hiring temporary staff proved unnecessary because the roadmap for capsules in afternoon programs was cancelled. The funds were allotted to other objectives in the "COVID-19 budget".

The regular activity of the education system suffered, and the conduct of the Ministry of Education and the government created acute uncertainty among teachers, parents, and students. The loss of school days and social interactions may affect students in the long term. However, expediting the delegation of powers to principals and local authorities, enhancing digitization—even if it is used only as a supplemental tool in the future and not as an alternative to classroom study—and drawing conclusions from the greater focusing of scholastic material and matriculation exams may create the conditions for meaningful reforms that will improve the quality of education in Israel in coming years. If the crisis period is utilized to restore routine current activity while investing more in digitizing schools and training teachers in digital instruction, assimilating pedagogical changes that have proved successful in the curricula, and making computers and Internet infrastructure accessible to pupils from all population groups, the education system will be able to exit the COVID-19 crisis strengthened and better suited to the twenty-first century.

Expediting the delegation of powers to school principals and local authorities, enhancing digitization, and drawing conclusions from the greater focusing of scholastic materials and matriculation exams may create the conditions for meaningful reforms that will improve the quality of education in Israel in coming years.

e. Employment of general-government workers under the COVID-19 restrictions

The ability of public sector authorities to maintain business continuity was also challenged by the eruption of the pandemic and the decision to impose social distancing at workplaces. Several collective agreements concluded during the year allowed improvements in the employment of public sector workers during the crisis in a way that will make it more flexible and efficient in the future as well. In late March, after a brief period of uncertainty, a collective agreement that placed 50–70 percent of staff on compulsory paid leave was signed.⁵² After Passover, an additional accord prolonged the leave but docked workers for only half of the vacation days they were forced to take from the end of the holiday to the beginning of May.

When the first lockdown ended, the temporary collective agreement was adjusted to the “purple badge” requirements in order to allow the public services to continue operating even under restrictions on physical presence in workplaces. The agreement gave employers managerial flexibility in ways that included adjusting work hours (including shifts) and the work week, revising job definitions and contents, allowing staff mobility, and assimilating innovative technologies—all at employers’ discretion, with labor peace, and without bonus increments. In cases where the restrictions precluded work after all these instruments of managerial flexibility were fully invoked, the agreement allowed employers to place staff on temporary “internal furlough” or to downscale their posts.⁵³ This unique period of time, which included important processes such as working from home, digitization of government services, and

⁵² Except for the healthcare system, the defense system, and other essential services, which operated on relatively large scale or even at full capacity.

⁵³ Workers on internal furlough continue to receive their salaries, but only at 70 percent of the determining wage for full severance pay. Although this option was available, its takeup rates were rather low.

revision of working conditions, demonstrates the potential of adjustments that will enhance public sector labor productivity in ordinary times as well. It will be important to base future collective agreements in the public sector on such structural changes.

3. GOVERNMENT REVENUE

From an annual perspective, tax revenue in 2020 fell largely in tandem with GDP. The real macroeconomic variables that affect tax revenue, such as imports of consumer goods and the state of the capital market, did not change meaningfully during the year relative to precrisis expectations, and the growth in home sales in the precrisis quarters favored an increase in real estate tax collection. Bearing in mind the determinants of tax revenues according to the Research Department's tax model⁵⁴, the decline in tax revenues was somewhat larger than expected by the model, particularly in the second quarter of the year.

In the short term, an abrupt turnaround in activity usually impairs tax collection in a nonlinear way because the familiar elasticities in ordinary times lose their validity when crisis erupts and the decline in tax receipts is more rapid than the decline in output. By decomposing the loss of tax revenues relative to 2019 into periods differentiated by the acuity of the restrictions (Figure 6.7), one finds that while (gross) income tax collection plunged during the first lockdown, during the summer recovery period (June–August), and even during the second lockdown, direct tax collection surpassed the previous year's level so strongly that it closed the gap of the annual total relative to 2019. Indirect taxes, which respond more quickly to changes in economic activity, took a harsher blow during the first lockdown. Thus, even though domestic VAT receipts rebounded as activity gathered strength, import taxes remained low and increased in December only because motor vehicle purchases were moved up in order to preempt a tax increase on them in January 2021. The imposition of restrictions on movement was also reflected in a steep downturn in fuel-excite collection during the lockdowns.

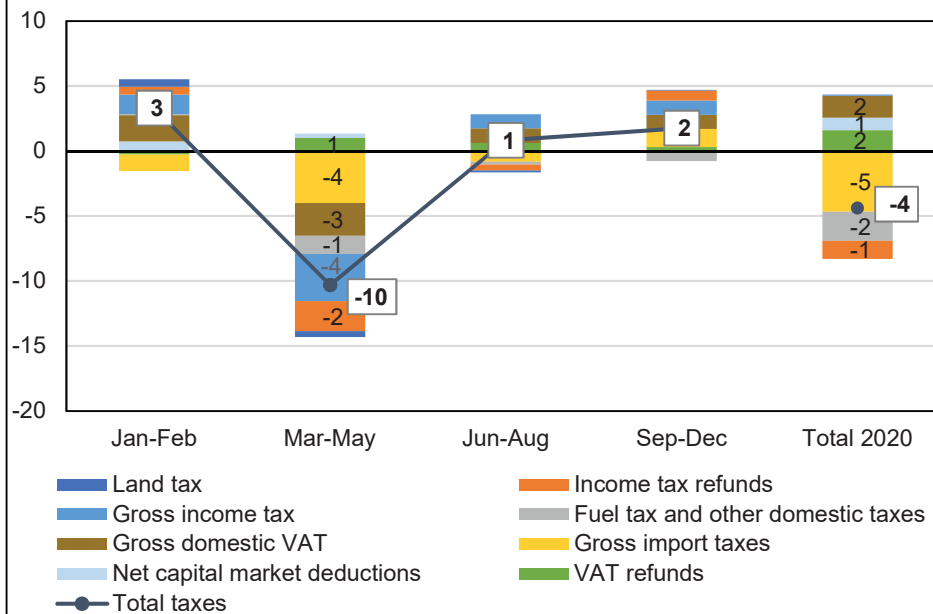
In the ten months following the onset of the crisis (March–December), tax revenue was NIS 7 billion below the same period in the previous year, but it surpassed expectations during that period. This happened for two main interrelated reasons. First, the impact to GDP was milder than expected during the year. Second, the dual nature of the blow to the labor market was reflected in tax collection. That is, most workers who were furloughed or dismissed were low-wage earners who did not reach the income tax threshold or paid relatively little income tax beforehand. (For elaboration, see Chapters 2 and 5.) Thus, despite the grave blow to labor input, income tax revenue increased in March–December relative to the same period in the previous year.⁵⁵

In the ten months following the onset of the crisis (March–December), tax revenue was NIS 7 billion below the same period in the previous year, but it surpassed expectations during that period.

⁵⁴ For details about the tax model, see A. Brender & G. Navon (2010), "Predicting Government Tax Revenues and Analyzing Forecast Uncertainty," *Israel Economic Review*, 7(2): 81–111.

⁵⁵ Israel Tax Authority (2021). *State Tax Revenues in 2020, in the Shadow of the Crisis—Special Review* [Hebrew].

Figure 6.7
Contribution of Various Taxes to Change in Tax Revenue in 2020
Compared with 2019 (NIS billion)



SOURCE: Based on Israel Tax Authority.

4. BREAKDOWN OF THE GENERAL GOVERNMENT DEFICIT BY UNIT

All components of the general government deficit increased during the reviewed year, mainly due to increased spending. Revenue from the public declined roughly in tandem with GDP, leaving its level in GDP terms largely unchanged.

The central government foisted expenses on local authorities and public NGOs, but indemnified them for their increased expenditure and even beyond. The total deficit of the municipal authorities fell by 0.1 percent of GDP, mainly due to NIS 3.4 billion in transfers from the central government under exceptional COVID-19 budgeting, which included indemnifying local authorities for the municipal tax exemption given to businesses⁵⁶ and pandemic-related expenditures, as well as balancing grants for several financially disadvantaged authorities. The municipal tax exemption for businesses and its accompanying indemnification protected local authorities from a loss of revenue that they would have otherwise had to absorb because many businesses would not have withstood under the burden. Additional transfers were budgeted

⁵⁶ Local authorities were indemnified for the municipal tax discount that was given by order of the Minister of the Interior—100 percent for selected industries at first (March–May) and, from June 2020, a 95 percent discount for businesses that lost more than 60 percent of revenue relative to the same period in the previous year.

as part of the devolution of powers from central to local government in areas such as epidemiological investigations and increases in the number of tests, funded via financial incentives to local authorities in the last quarter of the year.⁵⁷

The National Insurance Institute was indemnified for the government's decisions to expand the eligibility group for unemployment benefits and to distribute grants irrespective of the employment situation. However, the government did not indemnify the NII for the latter's own revenue loss or the increase in unemployment benefits to people on furlough who would have qualified for unemployment compensation under the National Insurance Law had they been fired.⁵⁸ In addition, an automatic cutback in current transfers to National Insurance, which are pegged to social security contributions from the public, freed NIS 2.3 billion from the interim state budget. This sum was reallocated to other expenditures for the public. While such transfers among components of the general government do not affect the total deficit, they did affect the National Insurance Institute's total balance, which turned into a deficit for the first time and was financed by cutbacks on previously accrued surplus balances (Table 6.3).

In ordinary times, the National Insurance Institute's unemployment program does not accumulate surpluses that may be used in the event of an economic crisis. Therefore, funding a National Insurance deficit by drawing on the Institute's inventory of bonds comes at the expense of funds accumulated for other actuarial liabilities.

In ordinary times, the NII's unemployment program does not accumulate surpluses that may be used in the event of an economic crisis. Therefore, funding a National Insurance deficit by drawing on the Institute's inventory of bonds comes at the expense of funds accumulated for other actuarial liabilities. Using the National Insurance fund to finance deficits originating in current economic shocks weakens the mechanism that requires the government to cover some of the long-term cost of benefits by means of payments of principal and interest. In the future, it will necessitate an increase in the government's current transfers to the National Insurance Institute, an increase in the public's contributions, or a cutback in benefits.⁵⁹ If the state wishes to preserve National Insurance as a system that accrues the public's savings in the present in order to pay out benefits in the future, developments in the reviewed year underscore the need to set apart the sources of funding for branches such as old-age and survivors' benefits by separating them from short-term activities in order to prevent cross-subsidization that overweighs the present at the expense of the future due to decision-makers' myopia without disclosing the implications to the public.

⁵⁷ https://www.gov.il/he/departments/news/press_16112020_b

⁵⁸ The treasury's indemnification of the National Insurance Institute on account of unemployment compensation in 2020 included only the increase paid out on account of measures to expand eligibility for unemployment compensation: cutting the qualifying period from twelve months to six, shortening the minimum term of unpaid leave qualifying for unemployment compensation from thirty days to fourteen, extending the term of eligibility for unemployment compensation in accordance with the broad definition of the unemployment rate, and so on.

⁵⁹ For details, see Adi Finkelstein, "A Long-Term Forecast for Israel's National Insurance System," in *Selected Research and Policy Analysis Notes*, Bank of Israel, October 2019.

Table 6.3
Components of the overall deficit^a, by unit, 2019 and 2020

		(percent of GDP)			
		Central government	National Insurance	Municipalities	Public nonprofits and the national institutions
Revenue from the public	2019	24.8	5.3	4.0	1.1
	2020	24.7	5.1	4.0	1.2
Expenditures vis-à-vis the public	2019	19.9	6.7	6.0	7.3
	2020	23.5	9.5	6.3	7.6
Deficit/surplus (+/-) vis-à-vis the public	2019	-4.8	1.3	2.0	6.1
	2020	-1.2	4.3	2.4	6.4
Net transfers/receipts (+/-) within the general government	2019	9.9	-2.1	-1.9	-6.0
	2020	12.2	-3.4	-2.4	-6.4
Overall deficit/surplus (+/-)	2019	5.1	-0.8	0.1	0.2
	2020	11.0	0.9	0.0	0.0

^a Excludes the reduction of expenses financed by the sale of land.

SOURCE: Based on Central Bureau of Statistics.

5. THE PUBLIC DEBT AND ITS FINANCING

After a decade of steady decline in the debt to GDP ratio, the gross public debt increased by 12.6 percent of GDP in 2020 due to an 11.6 percent of GDP deficit and a contraction of nominal product (the denominator of the ratio) that increased the ratio in percent-of-GDP terms. Conversely, the negative inflation rate and steep appreciation of the shekel contributed to a downward revaluation of the public debt by 0.7 percent of GDP. In addition, the government over-issued debt by 1.6 percent of GDP due to higher deficit forecasts than the actual deficit and the wish to assure the availability of liquid sources in the event of a longer and deeper crisis. This over-issuing will make the burden of interest payments higher in 2021, when the deficit is expected to remain high by historical comparison, but it makes issuing easier in 2021 and mitigates uncertainty about future issuing terms.

Table 6.4
Components of the increase in the gross public debt, 2015–2020

	(percent of GDP)					
	2015	2016	2017	2018	2019	2020
Debt at the end of the previous year	65.7	63.8	62.1	60.6	60.9	60.0
Nominal growth of GDP	-3.2	-3.0	-2.2	-2.8	-3.3	1.0
Net capital inflow	1.7	1.8	1.2	2.5	3.2	13.1
<i>of which</i> : Government's cash deficit (excluding credit)	2.1	2.1	2.0	2.9	3.7	11.6
Net repayment of credit by the public ^a	-0.5	-0.2	-0.1	-0.1	0.0	0.0
Privatization proceeds	-0.3	-0.1	-0.1	-0.2	-0.1	0.0
Funding beyond the financing deficit ^b	0.4	0.1	-0.5	-0.1	-0.4	1.6
Revaluation of shekel-denominated indexed debt ^c	-0.3	-0.1	0.1	0.2	0.2	-0.2
Revaluation of foreign currency-denominated debt	-0.1	-0.2	-0.6	0.5	-0.7	-0.5
Adjustment to issuance costs	-0.2	-0.1	0.0	-0.1	-0.2	-0.4
Remainder ^d	0.2	-0.3	0.1	-0.2	-0.1	-0.5
Debt at year end	63.8	62.1	60.6	60.9	60.0	72.6

^a Including the provision of credit and principal collection.

^b Financing surplus.

^c Effect of the increase in the Consumer Price Index during the year on indexed debt.

^d As a result of roundings.

SOURCE: Based on Ministry of Finance.

The most acute change during the year was the sharp increase in foreign currency issues: 32 percent of total annual issuing, compared with an average of 13 percent in the past decade.

Apart from its unprecedented amount⁶⁰, debt-issuing in 2020 had a unique profile that, given the magnitudes involved, also affected the composition and total risk profile of the public debt. The most acute change during the year was the sharp increase in foreign currency issues: 32 percent of total annual issuing, compared with an average of 13 percent in the past decade (Figure 6.8). As a result, the share of outstanding debt denominated in foreign currency climbed from 8 to 12 percent of GDP (Figure 6.9). The increase in external debt-issuing despite its relatively high cost reflected the vast uncertainty that prevailed at the beginning of the crisis, as well as concerns about difficulty in financing the high deficit levels in the domestic market and hardships in issuing in the global market if the crisis would prove to be lasting.⁶¹ The diversion of additional issues to foreign markets, along with quantitative easing (QE)—purchases of long-term government bonds on the secondary market by the Bank of Israel—

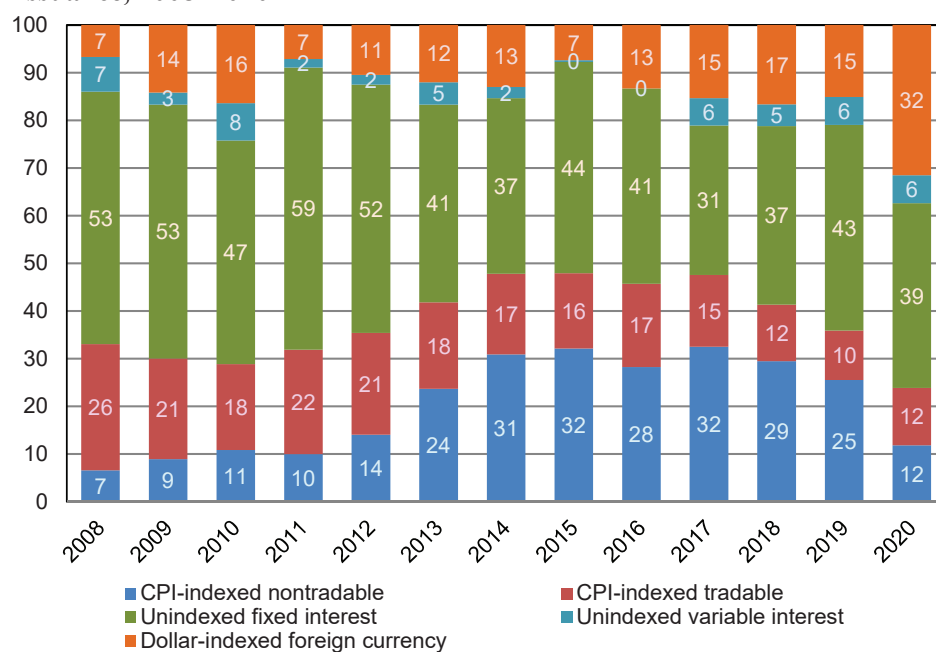
⁶⁰ Total domestic tradable bond issues (not including swap auctions) exceeded the 2019 level by 89 percent.

⁶¹ In addition to the steep deficit, there was concern at the beginning of the crisis about the extent of debt financing via issues of nontradable bonds to the pension funds due to declines in the capital market and much uncertainty about the development of domestic wage payments. Despite a steep downturn at the outset of the crisis, total annual issues (2 percent of GDP) resembled the average of previous years. For further information on the earmarked-bonds arrangement, see Bank of Israel (2017), *Annual Report* for 2016, Chapter 6, “The Public Debt and Its Financing.”

eased the pressure on the domestic market. This was manifest in the preservation of relatively low yields throughout 2020.

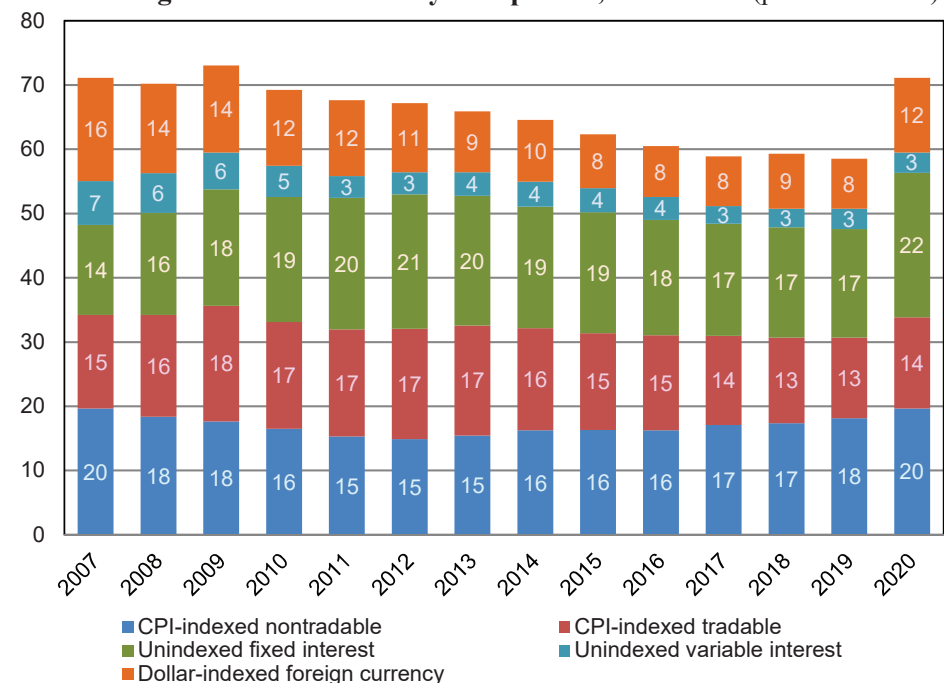
The proportional increase in self-underwritten issuance of long-term external debt extended the average maturity of the outstanding external debt from 8.8 years in 2019 to 15.6 years in 2020, further to the long-term trend of extending the average term to maturity of total government debt from a low of 6.6 years in 2011 to 9.3 years in 2020. Credit rating agencies and the bond market view this process favorably because it helps to mitigate debt rollover risk. Conversely, long-term debt instruments increase the burden of interest payments on the debt in the short term (due to the risk premium built into the costs of issuing long-term debt). Raising the share of foreign currency in debt also exposes the government to future depreciation and induces the Ministry of Finance to mitigate the risk by making hedging transactions of increasing volume.

Figure 6.8
Composition of Government Debt Issuances as a Percentage of Total Issuance, 2008–2020



SOURCE: Based on Ministry of Finance.

Figure 6.9
Outstanding Government Debt by Component, 2007–2020 (percent of GDP)



SOURCE: Based on Ministry of Finance.

6. FISCAL POLICY CHALLENGES AFTER THE PANDEMIC IS BROUGHT UNDER CONTROL

a. Sustainable retraction of the expanded economic safety net

The COVID-19 crisis is a shock of exceptional magnitude from a historical perspective—both Israeli and global. However, it is worth differentiating between the emergency period—in which the government had to act aggressively to cope with the pandemic and its implications for economic activity—and the recovery period, which will arrive once the pandemic is brought under control and the restrictions on businesses are lifted for good.

In view of its large-scale support of households and businesses, the question is when the government should start to downscale its expanded transfers and loans. Excessive prolongation of support may impair incentives to work, keep “zombie firms” alive⁶², distort the reallocation of factor inputs, and raise the debt to GDP ratio. Conversely, premature desubsidization may unleash a wave of insolvencies in the most stricken industries, reduce labor demand even when the restrictions are revoked, and take a

⁶² Companies that perform poorly over time but remain in the market by rolling over their debts. For elaboration, see Chapter 4.

toll on private consumption. Even without this scenario, the unemployment rate may remain high in the medium term, mainly among the most disempowered population groups, in the periphery, and among the less educated.⁶³

Other countries' experience shows that an overly rapid retreat from expansionary policy may impair the economic recovery. The concern in the United States about a fiscal cliff that was supposed to have been reached in early 2013 due to a major cutback in federal spending and the expiration of provisional tax cuts aggravated uncertainty badly, moderating US activity even before the consolidation went into effect.⁶⁴ According to Fatás and Summers (2018), the austerity policies that eurozone countries introduced after the Global Financial Crisis impaired potential growth. Japan's attempt in 1997 to lower the deficit by raising the VAT rate by 2 percentage points failed, precipitating a recession that left the country worse off than before.⁶⁵

Currently, the safety net for businesses and the self-employed is enshrined in law until June 2021, and the relaxed terms for unemployment compensation will also apply until then or until the broad unemployment rate falls below 7.5 percent, whichever comes first. These examples show that if the broad unemployment rate remains high in June 2021, it would be bad for the economy to withdraw the entire safety net in one shot.⁶⁶ Instead, government aid should focus on smoothing the economy's transition from emergency to recovery by applying tools that promote employment and vocational training for those cast out of the labor market and reinforcing monitoring of the inability to return to employment. Support should be focused on badly hit industries and businesses that are struggling to make investments and maintain liquidity.

b. Repairing the fiscal framework—the state budget and a multi-year plan

Institutional flexibility allows a government to forestall long-term harm to the economy by coping with unforeseen crises. Despite the inherent advantages of policy flexibility, experience in Israel and abroad shows that the ability to fund public activity by means of deficits often leads to choosing expenditures that may not be the most efficient and foisting the burden of repayment on future governments and generations. Accordingly, developed countries have adopted fiscal rules that enhance policy credibility.⁶⁷

European and US experience shows that an overly rapid retreat from an expansionary policy may impair the economic recovery.

Government aid should focus on smoothing the economy's transition from emergency to recovery by applying tools that promote employment and vocational training for those cast out of the labor market and supporting badly hit industries and businesses that are struggling to make investments. The automatic stabilizers should be strengthened so that the fiscal adjustment will be gradual and synchronized with the economic recovery.

⁶³ See Bank of Israel (2018), *Annual Report for 2017*, Chapter 8, "Unemployment and Employment in Various Geographic Regions in Israel."

⁶⁴ T. Davig & A. Foerster (2019). "Uncertainty and Fiscal Cliffs." *Journal of Money, Credit and Banking*, 51(7): 1857–1887.

⁶⁵ A. Fatás & L. H. Summers (2018). "The Permanent Effects of Fiscal Consolidations," *Journal of International Economics*, 112: 238–250.

⁶⁶ We do not deal here with adjustments that will be needed in any event, such as determining the right to unemployment compensation in coming years for those who used up all previously accrued entitlements during the COVID-19 crisis.

⁶⁷ Adi Brender (2021). "Fiscal Policy: The Journey toward a Low Debt to GDP Ratio and Smaller Government." In *The Israeli Economy, 1995–2017: Light and Shadow in a Market Economy*, eds. A. Ben-Bassat, R. Gronau, and A. Zussman, pp. 41–72, Cambridge University Press.

The political instability that has typified the past two years underscores the need for a long-term institutional economic framework that can exist independently of short-term limitations. This framework should include effective fiscal rules that take account of the volatility of the macroeconomic environment and tax revenues, provide an orderly working process for the state budget, and reinstate the Numerator rules⁶⁸, preventing shortcuts that impair their efficacy.⁶⁹ Such a framework would support the attainment of the government's long-term objectives, such as improving national labor productivity and lowering the structural deficit by using long-term structural measures as opposed to intrinsically provisional measures.

The principles that should guide fiscal policymakers in 2021 and onward, set out in the Bank of Israel fiscal survey⁷⁰, are as follows: continued separation of the safety net from the spending framework of the regular budget; countercyclical use of the safety net commensurate with the pace of the economic rebound; avoidance of government decisions that would increase the structural deficit in 2021 and, conversely, fiscal adjustments such as tax hikes in 2021; and in the medium term: replacing the current spending rule with one focusing on converging the debt to GDP ratio to the long-term target that the government will set, and aligning the structural deficit with this target with symmetrical treatment of statutory changes in spending and tax rates.

c. Reducing the structural deficit

Policy during the crisis aimed to provide households with confidence and support the survival of businesses as long as economic activity was restricted for exogenous reasons. The need to implement such policy pushed the treatment of the economy's high structural deficit to a lower position on the public list of priorities. Given the powerful surge of the debt to GDP ratio, however, the matter is becoming important once again because there is currently less fiscal space than there was a year earlier, making the economy less resilient to future crises. (See Box 6.1.) The main channels through which the government can exert its strongest influence on the fiscal space are by cutting future structural deficits and boosting the potential GDP growth rate. This brings us to the core question that policymakers have faced in recent years: How should Israel's structural deficit be lowered in terms of the composition, timing, and pace of the consolidation?

Alesina and Ardagna (2013) sort consolidation events in twenty-one OECD countries between 1970 and 2010 into those that succeeded (lowered the debt to GDP

⁶⁸ The Numerator rules, based on Section 40a of the Foundations of the Budget Law, 5745:1985, set out that the government shall not advance legislation, administrative directives, regulations, contracts, or other undertakings that, when performed, increase government expenditure or reduce state revenue in a way that leads to deviation from the fiscal limits established in the Frameworks Law unless balancing actions that constitute a financing source are approved.

⁶⁹ For elaboration, see Bank of Israel (2018). "Fiscal Survey: Fiscal Policy in the Past Two Years and Projections for Coming Years," August.

⁷⁰ Bank of Israel (2020). "Fiscal Survey: Trends and Outlines for Fiscal Policy in 2021 and for the Medium Term," November.

ratio) and those that failed. They conclude that fiscal consolidation is more successful in cutting debt if it lasts longer, if economic growth during the consolidation is greater, if the cutback in all components of government expenditure (except public investment) is steeper, and if the increase in general-government employment is slower.⁷¹ The relevance of this finding for Israel is dubious because Alesina and Ardagna attained their results mainly from countries that have large public sectors (a high share of public expenditure)—as was the case in Israel until 2003. In this situation, the marginal utility of increasing public expenditure by one shekel is smaller than it is in countries with low public expenditure.

In Israel currently, the high structural deficit (by international comparison) is mostly due to a relatively low tax burden and not to particularly lavish public expenditure. Since defense spending and interest expenditure in Israel are high relative to other developed countries, primary civilian expenditure is very low. This narrows the ability to cut the structural deficit along this channel. In 2012, the government tried to trim the deficit by cutting expenditure but its measures in that direction did not survive for long. The next government canceled the cutback and widened the structural deficit even more. Therefore, it will be hard to lower the structural deficit without raising tax rates. This, however, does not eliminate the need to make government spending more efficient by reducing certain spending items in favor of more productive ones, the kinds that will contribute to long-term economic growth and improve government services.

The right time to begin the consolidation depends largely on information that will come into view in the coming year about when the crisis will end and the depth of the economic scars that it will have left. In 2021–2022, measures to expedite the economy's exit from the crisis may still be needed. If such is the case, they should focus on supporting the attainment of the long-term economic targets, including sustainable growth based on improvements in productivity, narrowing inequalities, and reducing greenhouse gas emissions, as many developed countries are doing. (See Box 6.2.) The onset and pace of the consolidation may be conditioned on macroeconomic indicators in such a way as to intensify the measures insofar as the economy approaches full employment, and suspend them if economic activity slows, be this for exogenous reasons or due to the consolidation itself.

The decision on how quickly to cut the structural deficit should consider both fiscal space and fiscal credibility. Although fiscal space is hard to quantify, the Israeli government's ability to apply fiscal expansion during a crisis appears to have grown since 2003. Yields and spreads on Israel's government debt have fallen in recent years and remained stable even during the crisis, attesting to the market's confidence in the country's ability to pay its debts. This propitious characteristic makes consolidation less urgent and allows it to take place gradually, thus minimizing its adverse effect on economic activity and citizens' wellbeing.

In Israel currently, the high structural deficit is mostly due to a relatively low tax burden and not to particularly lavish public expenditure. Since defense spending and interest expenditure in Israel are high relative to other developed countries, primary civilian expenditure is very low. This narrows the ability to cut the structural deficit along this channel.

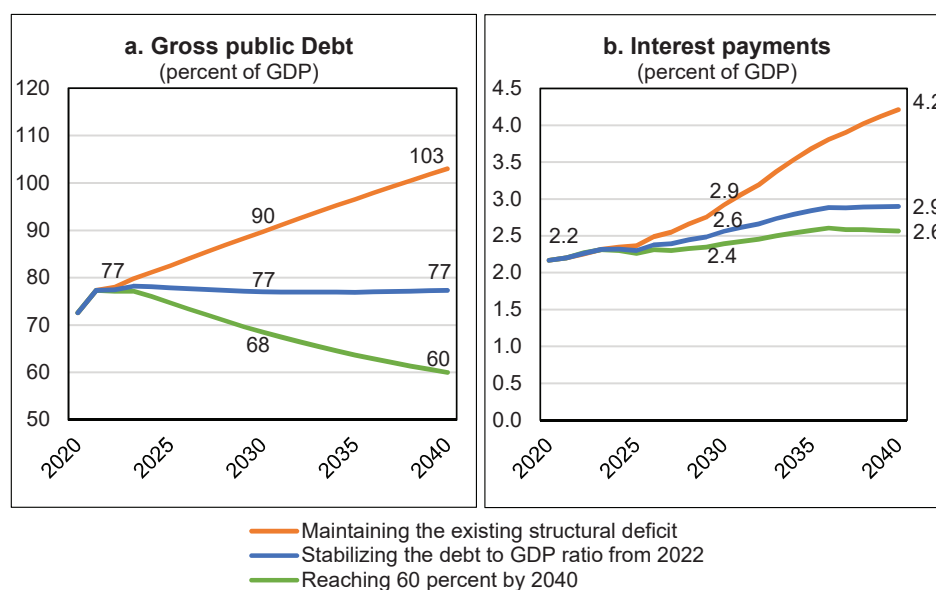
The right time to begin the consolidation depends largely on information that will come into view in the coming year about when the crisis will end and the depth of the economic scars that it will have left.

⁷¹ A. Alesina & S. Ardagna (2013). "The Design of Fiscal Adjustments," *Tax Policy and the Economy*, 27(1): 19–68.

The disadvantage of a gradual program is in the problem of time inconsistency: a gradual plan forces future governments to persist with measures established in the past. Accordingly, for reasons of fiscal credibility, the main components of the consolidation should be frontloaded, i.e., implemented as soon as possible. The contrasting effects of Israel's fiscal space and its political instability, which has impaired the reputation of fiscal policy, can be reconciled by applying a multi-year plan that includes concrete measures and not only deficit/expenditure targets that previous governments chose to amend repeatedly since they were first legislated.⁷²

A simulation of the path of the debt ratio and interest payments (Figure 6.10) demonstrates that if the structural deficit is maintained at its current level⁷³, the debt to GDP ratio and, in turn, the burden of interest payments are likely to continue rising unsustainably in the long term, eventually crowding out other expenditures or requiring tax hikes to finance it (the orange line in Figure 6.10). To stabilize the

Figure 6.10
The Fiscal Aggregates Under Various Policy Scenarios^a



^a The scenarios simulate the development of the debt to GDP ratio and the burden of interest payments as a result of various policy targets. The working assumptions include convergence to the long-term growth rate by 2023, an interest rate that is identical to the 2019 rate plus a risk premium in accordance with the increase in the debt ratio, and convergence of inflation to 2 percent in the medium term.

SOURCE: Bank of Israel.

⁷² For a detailed account of the frequent revisions of the deficit targets and spending rules, see A. Brender (2021), "Fiscal Policy: The Journey Toward a Low Debt to GDP Ratio and A Smaller Government." In *The Israeli Economy, 1995–2017: Light and Shadow in a Market Economy*, eds. A. Ben-Bassat, R. Gronau, and A. Zussman, pp. 41–72, Cambridge University Press.

⁷³ The Bank of Israel estimates the current structural deficit, which does not include expenditure and revenue loss on account of the COVID-19 crisis, at 4–4.5 percent of GDP.

debt to GDP ratio at its projected level at the end of 2021, a gradual contraction of the deficit to 2.5 percent of GDP will be needed (blue line). Furthermore, to converge the debt to GDP ratio to a long-term target—say, 60 percent of GDP by 2040—the deficit will have to be lowered to 1.3 percent of GDP (green line). These targets are ambitious relative to the government’s conduct in recent years and will entail major fiscal adjustments. The sooner the government designs and promotes a multi-year fiscal program, the more able it will be to spread the adjustments gradually so that their impact on the economy will be milder.

The sooner the government designs and promotes a multi-year fiscal program, the more able it will be to spread the adjustments gradually so that their impact on the economy will be milder.

d. Financing reforms and investment projects to enhance labor productivity in Israel

As an example of the investment projects needed to enhance productivity, here we examine policy scenarios that follow the Bank of Israel’s recommendations on enhancing labor productivity⁷⁴—recommendations for investment projects and reforms that, when implemented, are likely to deliver their main utility in the long run (after 2030) but incur major fiscal cost in the current decade.⁷⁵ The following analysis includes the examination of three alternative financing methods: raising tax rates, issuing debt, and a combination of both.

Under all three alternatives, the government invests 3.3 percent of GDP permanently⁷⁶ in improving the education system, incentivizing the private sector to invest in physical capital, upgrading transport and communication infrastructures, and improving the Israeli business environment. The investments affect growth in two ways: by increasing direct demand by the government, mainly through massive investment in infrastructure, and by improving labor productivity, stimulating private sector capital investment and boosting potential output in the long run. Assuming that the baseline policy scenario (no reforms) is such that the government decides to converge to a structural deficit that stabilizes the debt to GDP ratio in the long run (the blue line in Figure 6.10), Figure 6.11 demonstrates the implications of the way these reforms are funded for the fiscal aggregates and potential output.

Under the first alternative, the reform is fully funded by raising tax rates (black line). The structural deficit in the scenario without reforms is preserved but the tax hike offsets some of the increase in direct government demand and, by so doing, temporarily mitigates the reforms’ contribution growth. While it is agreed in the economic literature that raising tax rates slows growth in the short term and that this effect dissipates after several years, there is no consensus about the impact of the level of the tax burden on growth in the long term. Studies reviewed by the Bank of Israel

By restraining the structural deficit while inducing rapid GDP growth by improving productivity in some industries in the first decade of the reform, the debt to GDP ratio can be brought down steadily amid long-term investment in increasing the national standard of living.

⁷⁴ Bank of Israel (2019). “Raising the Standard of Living in Israel by Increasing Labor Productivity,” Research Department Special Report.

⁷⁵ For a breakdown of the cost-and-benefit calculations of reforms that propose to raise labor productivity, see Bank of Israel (2019). “Raising the Standard of Living in Israel by Increasing Labor Productivity,” Research Department Special Report, Table 1.

⁷⁶ The investment rises gradually during the first five years of the program.

(2019) found no empirical connection between raising the tax burden and economic growth, whereas other authors find a correlation between a 1 percent of GDP increase in the tax burden and a 0.05–0.1 percentage point decline in the growth rate in developed countries, although this is a correlation and not evidence of causality. Use of this correlation means that full funding of investment in infrastructure by means of a long-term increase in tax rates of 2 percent of GDP may slow the annual growth rate by 0.1–0.2 percentage points. Thus, even if the effect exists, it offsets only some of the acceleration of growth, estimated at 0.5 percentage points per year.⁷⁷ The black line in Figure 6.11 shows that by restraining the structural deficit while inducing rapid GDP growth by improving productivity in some industries in the first decade of the reform, the debt to GDP ratio can be brought down steadily amid long-term investment in increasing the national standard of living. In 2040, GDP is expected to be 15 percent higher than in the no-reform, no-tax-increase scenario, and the debt to GDP ratio is projected at 69 percent under the reform, compared with 77 percent without any reforms.

Using a permanent increase in the structural deficit to fund investments in order to raise labor productivity would impose a steadily growing fiscal burden on the economy.

The alternative represented by the red line in Figure 6.11—funding infrastructure investment by issuing debt—shows that despite rapid GDP growth, using a permanent increase in the structural deficit to fund investments in order to raise labor productivity would impose a steadily growing fiscal burden on the economy and induce a protracted increase in the debt to GDP ratio and the burden of interest payments. The reason is that this alternative envisions a permanent increase in spending and not one-off investment. Although the return on the public investment exceeds the interest rate that the government pays, the taxes it collects from this increase in GDP do not fully cover the added expenditure because they constitute only one-third of output. In other words, for every permanent increase of NIS 1 billion in GDP, the government collects only another NIS 0.3 billion. According to Bank of Israel assessments, the proposed reforms would nudge the annual growth rate upward by half a percentage point on average. This increase in output would be too small to offset the increase in the structural deficit that is needed to pay for the investments.⁷⁸ In addition, the interest burden may grow due to the increase in the interest rate that occurs in response to the growth of the public debt⁷⁹, crowding out other expenditures or entailing tax hikes in order to keep the structural deficit from exceeding the addition needed to fund the investments.

Under the third alternative examined, half of the investment cost is funded by taxes. The debt to GDP ratio grows moderately until the return on the investment in

⁷⁷ For an expanded discussion, see Bank of Israel (2019), “Raising the Standard of Living in Israel by Increasing Labor Productivity,” Research Department Special Report, p. 10.

⁷⁸ To demonstrate this: When the debt to GDP ratio is 75 percent, the acceleration of growth by half a percent of GDP contributes 0.3–0.4 percent of GDP to the decrease in this ratio (the denominator effect). In contrast, the rate of the added deficit is 2.3 percent of GDP on average. Thus, the debt grows by 2 percent of GDP per year, even before the cost of the increased interest payments on the total debt is taken into account.

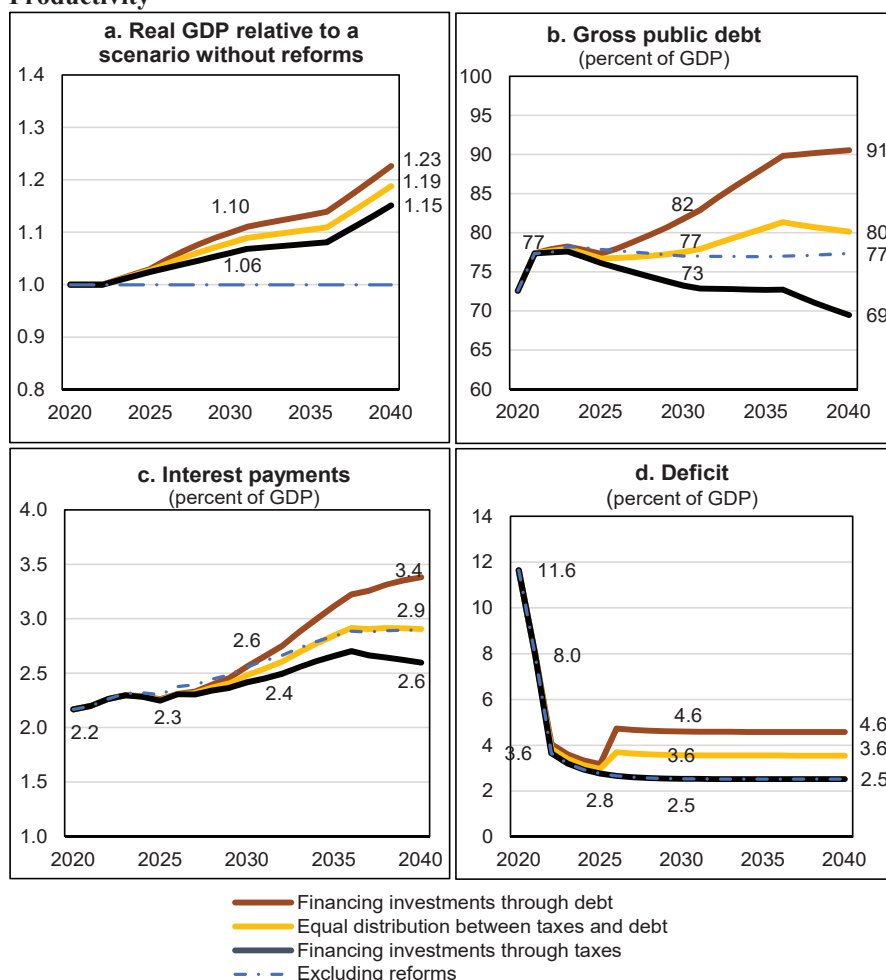
⁷⁹ See Note 11 in Box 6.1.

education begins to be realized. Afterward, rapid growth helps to bring about a change in trend toward a moderate decline in the debt to GDP ratio (the yellow line in Figure 6.11).

Before adopting this economic program, the government needs to set a long-term debt to GDP ratio target that takes into account both the importance of market trust in the government's fiscal responsibility and the need to carry out far-reaching reforms. The government programs should be funded by a mix of debt and taxes or optimization of public expenditure so that the debt to GDP ratio can converge toward the government's target.

Before adopting this economic program, the government needs to set a long-term debt to GDP ratio target that takes into account both the importance of market trust in the government's fiscal responsibility and the need to carry out far-reaching reforms.

Figure 6.11
The Fiscal Aggregates Under Alternatives in the Reform to Increase Productivity^a



^a The scenarios simulate the development of the fiscal aggregates and real GDP as a result of various financing alternatives to the recommendations that appeared in the Bank of Israel's 2019 productivity report. The working assumptions include convergence to the long-term growth rate by 2023, a real interest rate that is identical to the 2019 rate plus a risk premium in accordance with the increase in the debt ratio, and convergence of inflation to 2 percent in the medium term. The structural deficit, excluding the reforms, is the one that stabilizes the debt to GDP ratio at 77 percent in the long term.

Box 6.1

ISRAEL'S FISCAL SPACE

The concept of “fiscal space” describes a government’s ability to apply a countercyclical policy and head off a protracted recession after an economic crisis without badly exacerbating the risk of a debt crisis.¹ Fiscal space also makes it possible to cope with long-term but transitory fiscal pressures such as population aging or support of potential output growth by means of government investment projects.

The rapid increase in many governments’ debt levels, countered by the low cost of the increased debt, raises questions of whether they have enough fiscal space to cope with future needs and what debt policy is preferable in the coming years. In Israel, too, the availability of fiscal space has important ramifications for the government’s ability to continue supporting the economy and making the necessary investments to deal with structural issues without impairing debt sustainability.² This box analyzes the factors that have helped increase Israel’s fiscal space since 2004 and presents the risks to the continuation of this trend.

a. The fundamentals of fiscal space

The theoretical principle underlying the fiscal space notion is that the government has an intertemporal budget constraint that forces the government to manage a balanced budget over an infinite number of periods but allows it to have deficits and surpluses at certain times as long as they cancel each other out over several years. The government’s ability to issue debt depends on the market’s confidence in the government’s ability to pay back the debt in the future. It is this trust that allows a government to recycle existing debt; where it is lacking, a debt crisis may erupt.

Shifting the burden of government debt repayment from the present to the future comes at the cost of interest on the debt. Built into this cost, among other things, is the country’s risk premium (which reflects the market’s confidence in the government’s ability to pay its debts) and returns on other financial and real assets at home and abroad. The cost is offset when the economy attains long-term growth³: Debt accrued in the current period is expected to impose a smaller burden in the future by increasing the economy’s ability to produce and to finance itself. If interest on the debt is higher than the erosion of the interest burden due to GDP growth, the government has to create larger budget surpluses in the future to fund the present deficits. Conversely, if interest is lower than future growth, the sum of future surpluses can be smaller than the sum of deficits.

Market confidence creates a mechanism of self-fulfilling expectations. In 2008, governments were urged to spend aggressively when the financial system had ceased to function, in order to attenuate the macroeconomic shocks. At the recovery stage, however, although it was widely agreed that the support

¹ Benmelech and Tzur-Ilan (2020) find that the strength of the fiscal response to the current crisis correlates positively to per-capita GDP and country rating. According to Auerbach and Gorodnichenko (2017), fiscal multipliers tend to be greater when fiscal space grows because individuals have less expectations of future fiscal consolidation and therefore engage in less precautionary saving.

² For a definition of debt sustainability, see Note 11 in this chapter.

³ Expectations of faster growth in the long run may increase the return on domestic investment and therefore, also, the underlying interest rate on the government debt. A low long-term underlying interest rate may reflect expectations of slower growth in the future.

should be phased out gradually, the market “lost patience” and responded earlier than expected to the high deficit rate and debt ratio. Thus, some governments in Europe had to apply such stringent austerity policies that their consolidations went much farther than cancelling the expanded subsidies and relief that had been given in 2008 (Marcel, 2014). Attempts to estimate an effective debt ceiling for each country that, if surpassed, would probably result in a debt crisis (Fournier and Fall, 2017) yielded a vast range of possibilities⁴ due to the tremendous uncertainty that surrounds the development of the determinants of fiscal space and the simultaneous relation of these variables to the actual level of debt. Furthermore, a swiftly rising debt ratio may elicit a harsh response from the market long before the country reaches its effective debt ceiling. Therefore, it is hard to quantify fiscal space. Obviously, however, the smaller the debt, the less likely a debt crisis is.

b. Lowering Israel’s debt/GDP ratio

The most important determinant in reducing debt in between 2004 and 2008 was the primary surpluses in the state budget.⁵ In those years, Israel maintained strict fiscal discipline in order to lower its debt to GDP ratio on the basis of policy measures invoked under the 2002–2003 fiscal stabilization program. Tax cuts from 2005 onward, however, mitigated the contribution of the primary structural surpluses to lowering the debt ratio. In 2017, the primary structural surplus turned into a deficit, which reached 2.3 percent of GDP in 2019.⁶ Thus, the deficits that accumulated in 2017–2019 wiped out the entire contribution of the 2010–2016 structural surpluses to lowering the debt to GDP ratio (the purple bars in Figure 1).

A decline in the effective interest rate on the government debt⁷, coupled with rapid nominal GDP growth from 2010 onward, helped to sustain the downward trend of the debt to GDP ratio. The cumulative contribution of these factors between 2010 and 2019, however, explains only half of the reduction in those years. The rest was mainly due to extrabudgetary capital income (payback of government mortgage loans by the public and receipts from land sales), revaluation of foreign-currency-denominated debt, and lower CPI growth relative to the increase in the GDP deflator.⁸ These factors were exhausted with the contraction of outstanding mortgage loans and a decrease in the unhedged share of the external debt. Their impact on changes in the future debt level is therefore likely to be marginal.⁹

The year 2020 was an extreme outlier compared to the period reviewed above. In 2020, the negative nominal growth rate contributed to an increase in the debt to GDP ratio instead of eroding it, and massive temporary expenditure quickly returned the debt to its 2009 level. However, while the growth forecasted for the coming years is again expected to help lower the ratio, it will take many years for debt raised to fund the large deficits to erode unless the government decides to cut the structural deficit in order to reduce the outstanding debt. (See Figure 6.10 in this chapter.)

⁴ The result for Israel, for example, places the effective debt ceiling within a range of 193–250 percent of GDP.

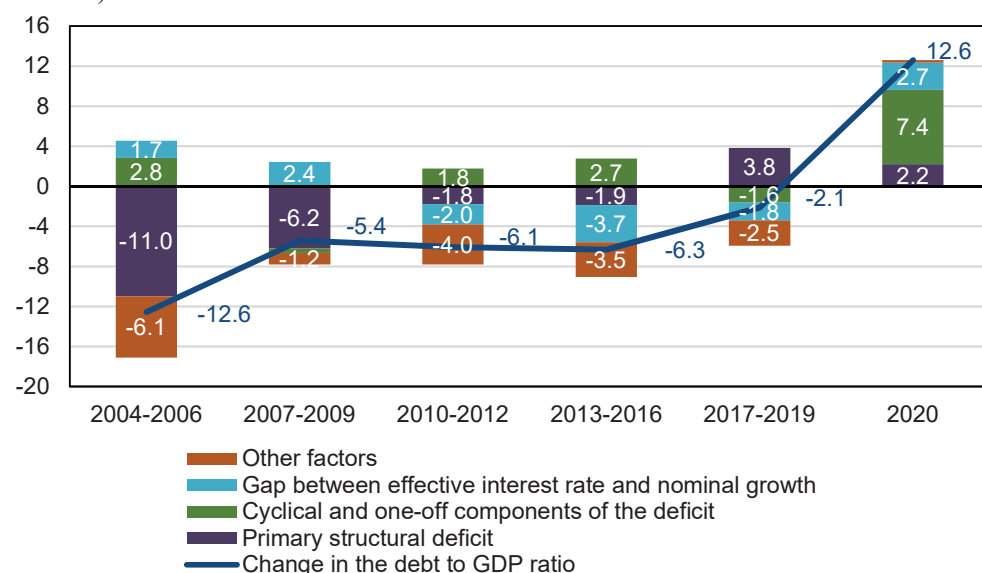
⁵ This approach to the deficit is different from Israel’s customary fiscal rules: We focus on the primary deficit—the total deficit net of interest—whereas the budget deficit that the government reports includes interest payments. The difference between the budget deficit reported during those years and the primary deficit presented here originates in the very steep interest payments at the time (an average of 5.8 percent of GDP per year).

⁶ For a methodological description of how the Bank of Israel calculates the structural deficit, see Mazar (2014).

⁷ Obtained by dividing annual interest payments by the outstanding debt at the end of the previous year.

⁸ About half of the government debt is indexed to the Consumer Price Index.

⁹ For a detailed analysis of the factors behind the contraction of the debt to GDP ratio in the past two decades, see Brender (2021).

Figure 1**Composition of the Change in the Debt to GDP Ratio, 2004–2020** (percent of GDP)

SOURCE: Based on Central Bureau of Statistics and Ministry of Finance.

The Debate on the Gap between Future Interest and Growth Rates

The persistence of growth rates higher than interest rates since 2008 is not unique to Israel. In recent times it has triggered a lively debate among economists over the extent of the need for active downscaling of public debt. Blanchard (2019) claims that the economic discourse about reducing debt derives from the perception of steadily rising rollover costs. This was the view until recently even though, historically, interest rates have been lower than growth rates, meaning that unless additional deficits are accrued the debt ratio would have fallen by itself in the long run, making it possible to maintain a deficit regime while holding the debt to GDP ratio stable. Furman and Summers (2020) claim that the decrease in interest rates is a structural change—a “secular stagnation”—that allows debt to be amassed without a major increase in interest payments. For this reason, they maintain, a government can improve fiscal sustainability by fiscal expansion that will fund itself if its return (the incremental GDP growth resulting from government programs) exceeds the interest rate on the public debt. Their main arguments assume full certainty and preservation of the gap between the interest and growth rates at its current level in the coming decades.

Will today’s interest and growth rates continue to persist in the future? It is hard to say for sure, but central banks’ intervention in government bond markets will almost certainly stop at some point, inflation expectations will rise again, demand for investment will grow, and, in turn, so will the nominal interest

rates that governments will pay on their future issues. Additionally, a low nominal interest rate may signal low expectations of future nominal growth. In other words, it may suggest that today's interest rate correlates with growth that is lower in the future than it is today. Israel's strong growth relative to other developed countries is mainly due to rapid population increase. Israel's per-capita GDP growth has not been higher in relative terms. In their baseline scenario, for example, Argov and Tzur (2019) project that per-capita GDP growth rates will fall steadily due to population aging and the growing share of the labor force whose human capital is irrelevant to employment.

Blanchard et al. (2020) and Sergeyev and Mehrotra (2020) contend that even if the natural interest rate remains below the potential growth rate in the future, a debt sustainability problem may arise and the effective debt ceiling will be much lower due to the feedback of interest rates and growth to the debt to GDP ratio. The main mechanisms through which growth may be impaired by high government debt are the crowding out of private investments, an upturn in the risk premium on private sector debt, and the contraction of liquidity in the market.¹⁰ High debt levels propel the state's risk premium upward, raising the interest rate¹¹, such that the negative spread between interest and growth may narrow or even reverse its direction. Previous debt crises demonstrate that when the debt level crosses a certain threshold, interest rates rise exponentially with an increase in debt, creating a mechanism of self-fulfilling expectations of a debt crisis.

Given the tremendous uncertainty regarding macroeconomic variables, debt sustainability is a probabilistic concept because there is a chance, albeit small, of major shocks that can trigger a debt crisis very quickly. Even if the interest rate falls short of the growth rate on average, the gap can become positive and large at times of deep recession. Then, a high level of debt means an onerous burden of interest payments that cannot be alleviated in the near term. This possibility creates two kinds of equilibria—a “good” equilibrium, to which the debt converges in the long term, and a “bad” (unstable) one, in which the debt ratio is maintained until market access is lost, pushing interest rates far beyond the growth rate and launching the public debt into an upward spiral.

These arguments reflect the risk of amassing high levels of debt because the gap between interest and growth may narrow or even turn positive, which means an increase in the debt to GDP ratio in addition to its growth as a result of the funding of current government deficits. A possible way of mitigating this risk is to extend the maturity of the government debt in a way that locks in today's low interest rates for the long term—assuming that today's rates reflect a temporary market phenomenon and not the expectation of lower nominal growth in the future—thereby building additional fiscal space. This solution, too, is temporary from a long-term perspective. Therefore, it is important for governments to choose a debt trajectory that will take possible risks into account in order to lessen the probability of entering hazardous territory. Under any scenario, it is important to put the government budget to productive purposes that will allow sustainable GDP growth and, in turn, increase repayment ability in the future.

¹⁰ In the model of Liu et al. (2020), an increase in the supply of government bonds has the advantage of lowering the liquidity premium for firms. High public debt, however, may impair growth by raising the risk premiums of both government and domestic firms. According to their model, calibrated to US data, the optimal level of debt in this trade-off is 60 percent of GDP.

¹¹ In Israel, Brender and Ribon (2015) find that the public debt to potential GDP ratio's effect on real yields has increased in the past two decades. Between 2001 and 2008, a 1 percent increase in the ratio led to a 0.05 percentage point increase in the real yield on ten-year government bonds. After 2009 the effect was 0.1 percentage points.

c. A nonrecurrent deficit increase vs. a long-lasting structural deficit

A nonrecurrent increase in debt due to a temporary deficit meant to prop up the economy during a crisis or for a temporary public investment plan is unlikely to impair fiscal sustainability because a government can spread repayment over a lengthy period, thus eroding the debt relative to GDP. The pace of this erosion, however, is contingent on the gaps between interest and growth rates, described above.

A simulation of the development of the probable marginal increase in the existing outstanding debt due to the COVID-19 crisis¹² (excluding future deficits) shows that the increment erodes very slowly even when the interest rate is below the growth rate. Table 1, showing plausible combinations of average interest rates and nominal growth rates in the next twenty years, makes it clear that even under very favorable macroeconomic conditions of 5.5 percent average nominal growth and 0.5 percent average nominal interest, the 13.6 percent-of-GDP excess deficit that will accumulate in 2020–2021 will boost the debt in 2040 to 5.4 percent of GDP—in addition to the effects of the deficit that the government will maintain during those two decades. To illustrate: If the government maintains a deficit path that before 2020 would have allowed the debt ratio to settle at 60 percent of GDP in 2040, the extra deficit accumulated in 2020–2021 will push the debt level in that year to 65.4 percent of GDP. In contrast, if the gap between the growth and interest rates proves to be smaller—say, 3 percent average growth and 3 percent average interest—the excess debt will not erode and the debt to GDP ratio will be 73.6 percent in 2040. The less favorable the macroeconomic conditions will be, the heavier the debt burden accumulated during the crisis is likely to be in the long term. Although the increase in debt due to the COVID-19 crisis did not endanger Israel's fiscal sustainability, it is narrowing the space between the actual level of debt and its effective long-term ceiling.

As described in Part B above, the dominant factor in the major narrowing of Israel's debt to GDP ratio in the first decade of this century was not the ratio of interest to growth or cyclical changes in the deficit, but the structural surplus. The erosion of the debt ratio caused by GDP growth will be totally offset if the government continues to maintain structural deficits at their current level. Despite the low cost of debt as of now, a protracted increase in the public debt will overshadow Israel's financial stability due to the transmission mechanisms mentioned above, possibly limiting the fiscal space with which additional crises may be tackled.

d. Conclusion

Although no agreed quantitative estimate of a country's fiscal space exists to date, the Israeli government's ability to apply fiscal expansion without risking a debt crisis appears to have grown since 2003. This ability has created convenient terms to cope with the current economic crisis and to meet the need for a major increase in government investment in human capital and infrastructure—something that Israel needs in order to close its productivity gap relative to other developed countries. The increased fiscal space was attained through two decades of declining debt to GDP ratios, driven at the beginning of the period mainly by structural surpluses but also by falling interest rates globally as well as in Israel,

¹² 13.6 percent of GDP—the primary deficit amassed in 2020–2021 less one percent of GDP, which is the primary deficit that was expected before the crisis, resembling the deficit targets in recent years.

Table 1
Additional debt in 2040 as a result of COVID-19 deficits

		Average nominal interest rate					
		0.5	1.0	1.5	2.0	2.5	3.0
Average nominal growth	2.5	9.4	10.3	11.3	12.4	13.6	14.9
	3.0	8.5	9.4	10.3	11.3	12.4	13.6
	4.0	7.1	7.8	8.6	9.4	10.3	11.3
	5.0	5.9	6.5	7.1	7.8	8.6	9.4
	5.5	5.4	5.9	6.5	7.2	7.9	8.6

Note: The table presents a simulation of the development of the additional debt (13.6 percent of GDP) created due to the COVID-19 crisis in 2020 and 2021. In this simulation, the interest and growth rates are set over the years 2022–2040, but this is a simplified assumption for illustrative purposes only, since the interest on debt issued in 2020 is already known. These variables will be influenced in the future by various factors, including the level of debt, as explained in this box.

along with a rapid increase in nominal GDP. This positive trend may slow or even turn around due to the government's high structural deficit, the difficulties the government has had in cutting it, and the expected slowdown of potential growth in the coming decades—challenges that may also cause the interest rate on the debt to rise.

The year 2020 as such did not perceptibly exacerbate Israel's debt risk. If the deficit increase this year and next is a transitory shock and the government acts to shrink the structural deficit by applying a credible multi-year program, the debt that was issued to finance the deficits in 2020 and 2021 will erode gradually. If a high structural deficit is maintained over time, however, the debt to GDP ratio is likely to trend upward from the level that it reached during the crisis, even under the most convenient of terms (low interest rate, strong growth). Given Israel's unique geopolitical risks, extra caution to forestall the development of such a trend is warranted.

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Box 6.2

“GREEN RECOVERY” AS A RESPONSE TO THE ECONOMIC IMPLICATIONS OF THE COVID-19 PANDEMIC IN DEVELOPED COUNTRIES AND IN ISRAEL

Fiscal expansion was a central tool in handling the economic implications of the COVID-19 crisis in many developed countries in 2020, and will probably remain so in the coming years. Initially it was meant to contend with the immediate blow that the pandemic dealt to employment and activity. In the exit and recovery stages that will follow the decline in morbidity, it is likely to focus more on investments to stimulate growth and create jobs.

There are two factors in the background of this expansion: relatively high employment, which it is meant to attenuate, and low interest rates. The cost to the economy of the sources necessary for investment are therefore lower than at times of economic upswing. Concurrently, economic logic affirms the need to exploit this expenditure to promote long-term growth and productivity by allocating it to deal with the economy’s structural problems, which demand solutions no matter what, and by refraining from wasting sources on investments that are not in line with the state’s long-term growth strategy.

Earmarking some of these rapid rebound measures for environmental causes is called “green recovery.”¹ For Israel, the concept fits into the need to deal with long-term environmental problems, mainly climate change and its potential direct and indirect effects on the domestic economy. Among other things, Israel may have to accept the increasingly strict international norms that developed countries have been introducing in this field and are thinking of enforcing vis-à-vis their trade partners.² In addition, there are also environmental problems, more local in nature, that need to be dealt with anyway and can be tackled even now.

Budget funding of green recovery programs may pose dilemmas related to the difference between short-term and long-term considerations. The former point toward projects that mainly boost employment. In contrast, the latter favor projects that may not maximize employment or GDP growth or narrow the output gap, but have a long-term effect on the quality of the environment and of life while expediting the economy’s adjustment to more stringent environmental norms than those currently in place.

Decision-making about the trajectories of the green recovery that Israel should pursue, and prioritizing specific green recovery projects, are therefore a complex and multifaceted policy issue that will require interaction and dialogue among government ministries, particularly in regard to adjusting to the new circumstances of exiting from the COVID-19 crisis.

This box examines the possibility of Israel’s joining the green recovery trend as part of its response to the COVID-19 crisis in view of what is happening in other countries.

¹ For a lengthy list of such measures (the relevance of which varies from country to country), see appendices to the IMF position paper “Green Recovery: Making the Post-Coronavirus Global Economy Sustainable.”

² Bank of Israel, *Annual Report* for 2019. “The Worldwide War on Global Warming and its Implications for Israel”, Selected Studies, pp. 64–85; Also: https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf

a. What does “green recovery” refer to around the world?³

The relevant conceptual framework is described in an International Monetary Fund survey on fiscal relief packages in European countries: large-scale relief programs that European governments intend to implement in support of efforts to rebound from the COVID-19 crisis. These packages create an opportunity to expedite investments in green projects and technologies that will help to slow climate change—a central policy objective that the European Union has adopted. An example of such action is prioritizing the construction of infrastructures for passenger-intensive public and non-motor transport. This would support both employment and the reduction of emissions, and would be part of the deployment for restrictions on greenhouse-gas emissions by means of carbon taxes, carbon swaps, and other measures in the near future.

The requisite policy measures in connection with green recovery and the war on climate change are schematically spread across five economic domains that vary in relevance from one country to the next:

- Energy production and industrial activity: a major expansion of the ability to produce renewable energy, bolstering of electrical grid infrastructures, and creating the ability to store renewable energy, as is necessary due to the unevenness of renewable-electricity supply at different times of day;
- Transport: incentivizing the purchase of electric vehicles and developing charging infrastructures for them;
- Homes and workplaces: processes that will improve building insulation;
- Agriculture: reducing emissions of greenhouse gases such as methane from livestock and expanding carbon-absorbing initiatives such as bamboo forests;
- Environmental projects that, while unrelated to climate change, affect quality of life, such as the treatment of environmental pollutants.

b. Specific actions in developed countries

The green recovery policies of most countries that have announced them remain in formative stages. Some budget allocations related to them are not fully “green” but are pledged to other needs such as support of troubled industries.

Below are several examples of green recovery budget allocations in the context of coping with the COVID-19 pandemic:

c. Implications for Israel

As stated, the definitions, targets, and benefits of green recovery vary widely among countries. A standard and accepted framework for such endeavors is still lacking. Insofar as countries abroad start to translate their green recovery intentions into action, their transition may affect Israel’s wish to act similarly. Even as the long-term benefits are examined, there is no overlooking the need to assure the contribution of

³ This section is based on <https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2020/09/16/Sectoral-Policies-for-Climate-Change-Mitigation-in-the-EU-49640>

Table 1: Budget Allocations for Green Recovery Projects in OECD Countries*

(percentage of GDP in 2019)

	Nature of project	Implemented	Agreed upon only
UK	Investing in R&D and renewable energy and developing green transportation	0.4%	—
Colombia	Investing in renewable energy development	0.57%	—
Canada	Investing in renewable energy development, building insulation, and green public transit	0.25%	—
France	Investing in green energy development, building insulation, and green public transit	0.6%	0.7%
Germany	Investing in hydrogen energy development, building insulation, and green transportation R&D	—	1.1%
Sweden	Improving building insulation and developing green transportation	—	1.53%
EU	Green investments and reforms (37% of the COVID-19 rehabilitation and recovery program)	—	3.42%

* The schedule for performance of these projects varies from country to country. Most projects are intended for performance by the end of 2023. The EU reforms will be applied, in accordance with the resolution, by 2026.

such programs to activity and employment during the recovery from the crisis, as explained above. Furthermore, priority should be given to projects that, in addition to their long-term utility, have already been approved and are ready to be implemented.

Therefore, the prioritization of projects in accordance with clear and reasoned estimates of their impact on employment and GDP, as well as their long-term benefit for the environment, should underpin the implementation of green recovery measures in Israel. Such measures may include the acceleration of projects to advance public transportation; transition to electric buses in cities; cleaning and revitalizing watercourses; rehabilitation of urban nature sites and open spaces; and improvement of insulation in homes and workplaces.

The Ministry of Environmental Protection has published a list of twenty proposals— which are not prioritized—in various fields.⁴ Five fields are specified for projects that can be implemented in the next few years. The following are examples from each field: (1) tackling the climate crisis—switching to renewable electricity production and making progress in renewable energy storage; (2) management of resources—bolstering the recycling industry; (3) improving the business environment and promoting cleantech—moving ahead with cleantech innovation pilots, R&D, and laboratories; (4) protecting open

⁴ Ministry of Environmental Protection, “Roadmap for Exit from the COVID-19 Crisis by Investing in the Environment,” May 31, 2020 [Hebrew].

spaces and biodiversity—revitalizing watercourses and nature sites; (5) reducing transport-related air pollution—switching to electric buses.

Another path of green recovery is expediting and consolidating regulatory treatment of environmental action in ways that can promote private investment in measures that have environmental benefit. Such a move may bring forward to the recovery period economic investments in new kinds of activity that will anyway be needed in the long term. Although this kind of acceleration will entail governmental attention and effort, it has the advantage of not necessitating additional budget expenditure. Action in this manner may stimulate employment in the business sector by paving the way to new kinds of activity. For instance, the regulation of charging points for electric cars can be accelerated, regulations under a clean air law that would force polluters to reduce their emissions can be enacted, and smart meters can be installed for electricity consumers in order to improve the efficiency of power delivery in the future, once the share of renewable energy grows.

Chapter 7

Welfare Policy Issues

- The impact of the COVID-19 crisis on the well-being of households in Israel was multidimensional and anomalous in its scope and intensity. Along with the effect on employment and income, there was also a significant impact on health, education, leisure time, and freedom of movement.
- The extent and intensity of the impact were not uniform. Employment in households in the middle income quintiles was affected more than employment in the other quintiles, but households in the lowest quintile were more affected in other areas of life, especially education and health.
- The education system in Israel was closed for several months due to the COVID-19 pandemic. This had a significant impact on the well-being of students in the short term and may result in a long-term effect on the average level of education. It may even result in harm to the students' entry into the labor market and their income. The damage caused by the school closures is focused on the disadvantaged population—on students who are not adequately equipped with the means necessary for distance learning, and this may lead to increased inequality.
- Looking to the future, and in order to minimize the impact of crises of any kind, it is advisable to try and maintain in-school continuity as much as possible, while balancing the routine with the limitations of the crisis. Efforts should be made to improve the distance learning system and to increase investment in the reduction of gaps.
- The rate of women temporarily absent from work during the lockdown periods was higher than that of temporarily absent men, especially during the first lockdown period. However, we found a very low correlation between the share of women in an occupation and in an industry and the intensity of the impact on employment. The rate of women employed is high in both the service industries, where employment was severely affected, and in essential industries and professions, such as health and education, where employment was less affected, if at all. Nevertheless, women may have suffered more of a negative impact than men in other respects, such as the increased burden of care and unpaid domestic work, and increased domestic violence, for which we do not have data at this stage.
- Due to the special nature of the crisis, the elderly population was particularly vulnerable. Their income was less affected, due to their relatively low involvement in the labor market, but they were more exposed to both physical and mental health implications of the disease and the lockdowns.
- Many Arab households suffered from low income even before the crisis, and therefore remain vulnerable to economic upheaval. As a result, the COVID-19 crisis led to great financial hardship among the Arab population, with about a quarter of them reporting a reduction in food consumption. There was also a significant impact on the studies of Arab students due to low accessibility to the means for distance learning.
- The opening of the schools most likely contributed to an increase of about 4 percent in the chance of the students testing positive for the disease (Box 7.1). In households where someone has already tested positive, about 1/3 to 1/4 of the others also tested positive. The rate of infection in such households is much higher than the average in the population, which was about 7 percent until the end of January 2021.

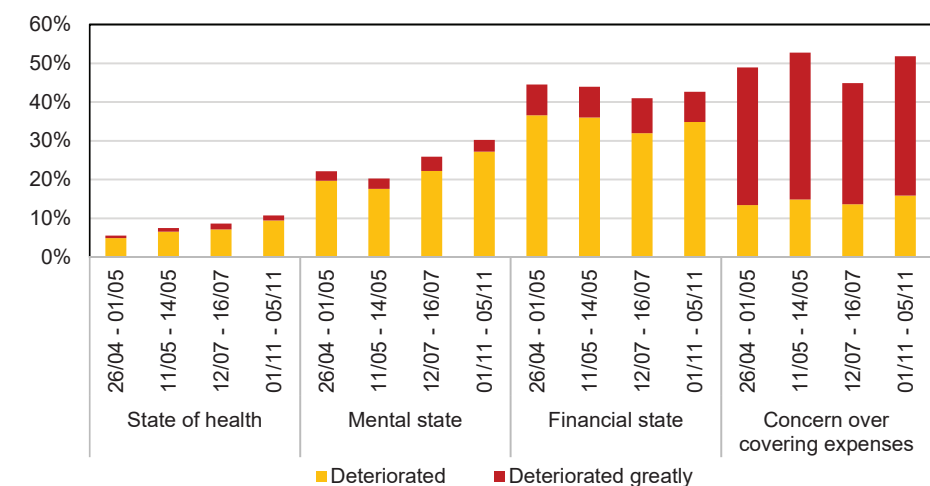
PART 1: IMPACT OF THE COVID-19 CRISIS ON HOUSEHOLD WELL-BEING – INTRODUCTION

The impact of the COVID-19 crisis on the well-being of households is exceptional not only in its intensity and scope, but also in its multidimensionality. It is reflected in various areas of life simultaneously and is also expected to have long-term consequences. The crisis revealed and intensified weaknesses in the socioeconomic safety net, along side factors and characteristics that worked to mitigate its negative effects. This chapter will describe those aspects of the impact on well-being that can be estimated using the data available to us today. This description is partial, since alongside the lack of well-established data, there is also great uncertainty about the exit path from the crisis, as well as about how it will affect households in the medium and long terms.

The multidimensional impacts of the crisis were reflected in the Civil Resilience surveys conducted by the Central Bureau of Statistics, some of the findings of which are presented in Figure 7.1. These surveys were conducted with slight changes in four waves—at the end of April, mid-May, mid-August, and at the beginning of November. The respondents were asked various questions regarding their situation and changes that had occurred due to the COVID-19 crisis. Among the changes documented in the most notable survey was the deterioration of the economic situation. Almost half of all respondents indicated a worsening of their economic situation due to

Central Bureau
of Statistics Civil
Resilience Surveys
indicate a deterioration
of households'
economic situation.
About half of the
respondents fear that
they will not be able to
cover their expenses.

Figure 7.1
Multidimensional Deterioration in the State of Households due to the Crisis^a



^a The respondents were asked about their condition relative to their precrisis condition: "Compared to your state of health prior to the crisis, how would you describe your state of health today?"; "Compared to your mental state prior to the crisis, how would you describe your mental state today?"; and "Due to the COVID-19 crisis, to what extent has your financial state and that of your household changed?". In the "Concern over covering expenses" category, the data relate to the rate of those who responded to the question "To what extent are you concerned about difficulty in covering expenses?" that they are concerned to a great extent or to some extent.

SOURCE: Central Bureau of Statistics Civil Resilience Survey.

the crisis. Most respondents, in each of the survey waves, responded that they are concerned about difficulty in covering expenses. More than a third of the respondents reported that they are very concerned about this matter. Only a small proportion of the respondents indicated a worsening of their health condition, but as the COVID-19 crisis, the spread of the pandemic, and the accompanying limitations continued, the rate of those reporting such deterioration increased. Compared with about 10 percent of all respondents who reported a worsening of their health condition, about 20 percent reported a deterioration of their mental state, and their proportion among the respondents increased as the crisis continued. More than a quarter of all respondents in November reported a deterioration of their mental state due to COVID-19.

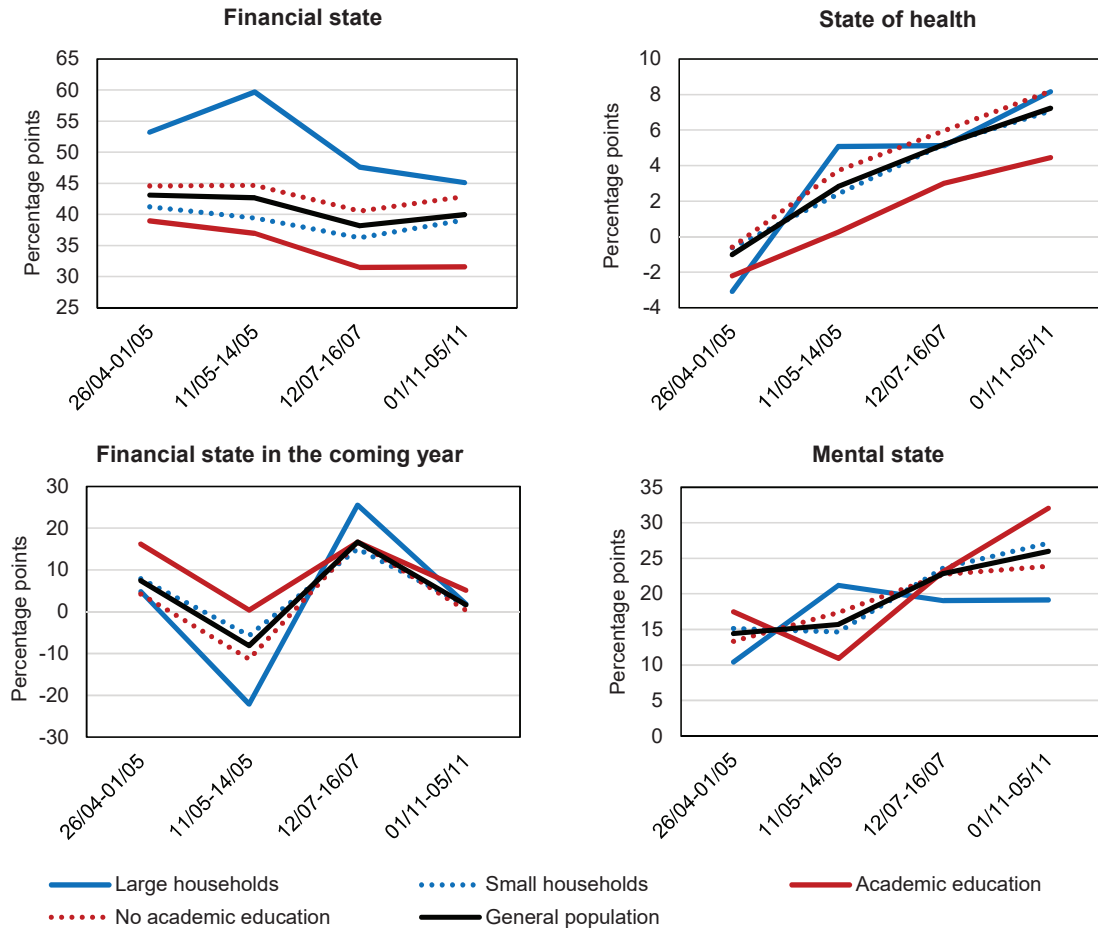
The resilience surveys also reveal the differences between respondents belonging to large households (those with more than 6 members) and other respondents, as well as between respondents with and without academic education (Figure 7.2). The differences are particularly pronounced in the deterioration of the economic situation. They are consistent with findings presented in other chapters of this Report (Chapter 2 and Chapter 5), and indicate that due to the nature of the health crisis and the restrictions placed on business and household activity, there was a particularly large impact on the employment of those who could not work from home, those living in crowded conditions, and those who were required to care for children when the educational institutions were closed.

One of the notable components of the impact on household well-being is the immediate impact on their incomes, mainly as a result of the labor market's response to the health crisis and government policies designed to reduce the spread of the pandemic.¹ The impact on employment and on household income was not uniform, and its intensity was affected by a variety of factors and characteristics, which are closely interrelated. These include the household's composition and living conditions, the employment characteristics of the head of the household and of his spouse, health risk, geographic location, age, gender, and more. Data from Labor Force surveys show that the impact on employment was significant at all income levels, but it was particularly pronounced in the middle income quintiles.² Figure 7.3 illustrates the wide extent of the impact on employment at all income levels. About 20 percent of households sampled again in December had lost at least one job relative to December 2019. Despite the decline in unemployment rates during the period, about 20 percent of households in the second quintile and about 10 percent of households in the third

The impact on employment was significant at all income levels, but it was particularly pronounced in the middle income quintiles.

¹ At this stage we do not have data on household income in 2020, and therefore, we will assess the impairment of income through an estimate of the impact on the scope of employment of households (data from Labor Force Surveys) together with data on household income from wages in 2019, the most recent data available to us. There is a high correlation between household income from wages and total household income. See Chapter 5 of this Report for an analysis of developments in the labor market and Chapter 6 for an analysis of fiscal policy and of support for households and businesses.

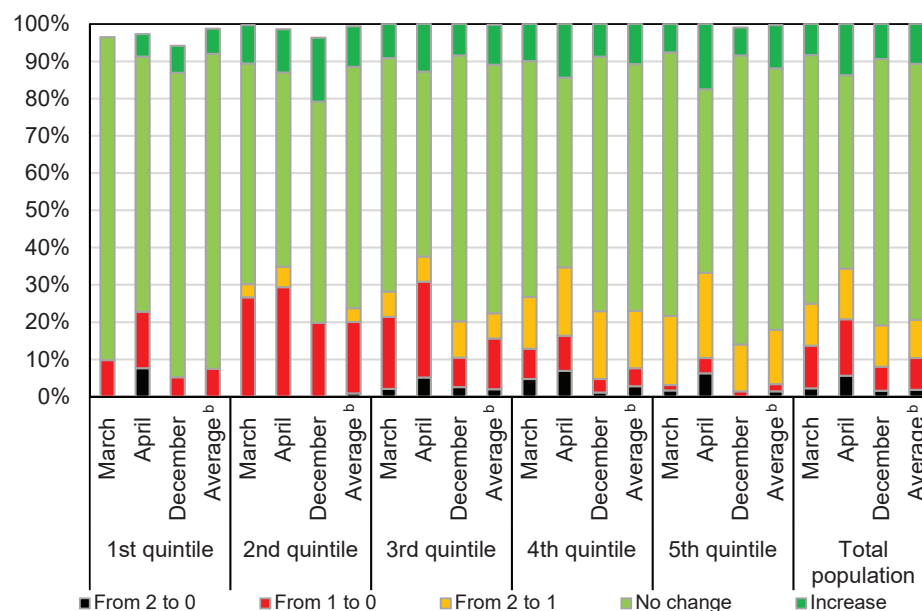
² Each month we divided the population into quintiles according to household income from wages in 2019. (For households that did not have employed individuals, zero income was recorded, and they were included in the bottom quintile.) After the division into quintiles, we located the individuals and households sampled in the corresponding month in 2019 and examined the changes in their employment.

Figure 7.2**Net Balances^a of Deteriorations in Health, Mental, and Financial States due to COVID-19**

^a The net balance is the difference between the rate of respondents whose situation has deteriorated and the rate of respondents whose situation has improved. An increase in the net balance indicates worsening, as more respondents report that their situation has deteriorated or deteriorated greatly. The question regarding the financial state in the coming year was: "In the coming 12 months, do you think your financial situation and that of your household will....".

SOURCE: Central Bureau of Statistics Civil Resilience Survey.

quintile remained without wage earners even in December, before the third lockdown. Unlike previous crises, the incomes of households at the bottom of the distribution were less affected than the incomes of lower-middle-class households, due to their low attachment to the labor market. Some of these households even experienced an increase in their total income due to the distribution of universal grants to the entire population. However, there are indicators that show that the overall impairment to their well-being was not negligible. They were more vulnerable to COVID-19 infection and severe morbidity (due to the correlation between a poor economic situation and risk factors for severe morbidity), to restrictions on movement and public transportation, and to a more significant and long-term impact on their children's education.

Figure 7.3**Change in the Number of Wage Earners in the Household, by Wage Income Quintiles^a, Head of Household Aged 25–64**

^a The household labor income quintiles are calculated by the total wages of the head of household and his or her spouse in 2019. The change in the number of wage earners effects the change in the number of actual employed persons belonging to the household (excluding temporary absentees) compared with the corresponding month in 2019.

^b The average for the COVID-19 months in 2020: March–December.

SOURCE: Based on Central Bureau of Statistics Labor Force Surveys.

As we have seen, the COVID-19 crisis had an impact on the well-being of households through different channels and at different intensities, which were greatly affected by their unique characteristics. The following sections of the chapter present an analysis of some of these impact channels and of the impact of the crisis on specific population groups. Section 2 of the chapter presents an analysis of the long-term impact of the disruption of studies during the crisis on the students. The disruption of studies also had a short-term impact on households, and particularly on mothers, who traditionally bear a greater share of the burden of childcare and education. Section 3 discusses how the COVID-19 crisis impacted genders differently. Sections 4 and 5 discuss two population groups that were particularly vulnerable during the crisis—the elderly and the Arabs. Box 7.1 presents another angle on the differential impact of the COVID-19 crisis on various population groups, and presents an analysis of the demographic and socioeconomic characteristics of COVID-19 patients in Israel.

PART 2: THE LONG-TERM IMPACT OF THE DISRUPTION OF STUDIES DURING THE COVID-19 PERIOD ON STUDENTS IN ISRAEL

a. Background

In 2020, the education system physically closed down for most of the time and moved to a distance learning format. This change was accompanied by negative effects on the well-being of students.

The COVID-19 pandemic led to a disruption of the normal course of studies in the 2019-20 and 2020-21 school years. The disruption was reflected in two ways: During the lockdown periods, schools were completely closed, and there was a transition to distance learning, and between the lockdowns, schools operated according to a “COVID-19 routine”, which included limited classroom learning and the continuation of distance learning for most of the time. Shortly after the change in the education method, it became clear that there are difficulties involved in its implementation, due to the students’ limited access to an infrastructure that enables distance learning, the teachers’ lack of skills in the new education method, and other negative effects on the students’ well-being and their ability to study during disruptions in their schooling.

During the first lockdown in 2020, the education system was closed just before Passover, and all studies began to be conducted remotely. During that period, students lost 25–35 classroom learning days (an average of about 15 percent of the school year). First and 2nd graders and 11th and 12th graders returned to school first in order to release parents for work and reduce the impact on matriculation exams. Two weeks later, all other students returned to school, with a number of adjustments for the COVID-19 routine (adherence to the rules concerning hygiene, social distancing, and wearing masks), except in a number of localities that suffered from high morbidity.

The 2020-21 school year began on time but was accompanied by great uncertainty. During the summer, the Ministry of Education published an outline for hybrid learning, which combines classroom learning and distance learning differentially according to the age of the students. Kindergartners and students in the lower grades (1–4) were the first to return to classroom learning at 80–85 percent of the regular hours, and 3rd and 4th graders studied at 80 percent of the regular hours in capsules. For this purpose, additional teaching staff were recruited, some without teaching certification. The plan was for 5th–12th grade students to study most hours (about 75 percent) remotely, and the rest in the classroom in capsules. A few days after the start of the school year, the number of students infected with the virus began to increase. Two weeks later, the education system closed and moved to a distance learning format for 30–62 school days (depending on the age of the students), after which there was a return to the COVID-19 routine for about 21–53 days³, until schools closed for the third time at the beginning of January. The system resumed partial operation during February for 1st–4th grades and 11th–12th grades).

³ The number of days was calculated according to the government’s decisions regarding the education system. It is possible that in practice some of the non-*Haredi* schools operated on a smaller scale, due to illness in the educational institution or a decision of the school administration or the local authority.

During the 2020-21 school year, the education system's operating format changed several times, and at the end of lockdowns, decisions were made only shortly before the start of school. This pattern of action, the manner of returning to school, and the frequent change in format resulted from a lack of agreement regarding how the opening of schools would affect an increase in morbidity and on the Ministry of Health's power relative to that of the Ministry of Education with regard to school closures. (For more information on the extent of COVID-19 morbidity and how the opening of schools affected morbidity among students, see Box 7.1.) In the absence of agreement between the entities, the government was not able to formulate a good plan of action that would mitigate the impact on studies and the spread of morbidity.

Governments around the world have chosen to deal with the crisis's impact on education systems in one of three ways: full physical opening of institutions subject to COVID-19 restrictions for all age groups; partial opening (with some studies conducted through distance learning); or full physical closure of the schools and all studies through distance learning. Physical closure of the education system was common throughout the world in the 2019-20 school year, and at the beginning of the pandemic, about 1.6 billion students remained at home instead of in educational institutions. The widespread disruption of studies had an immediate effect on the well-being of students, especially those from weaker population groups. The main sources of damage were⁴: an increased risk of domestic violence due to the prolonged stay at home; reduction or cessation of the schools' auxiliary assistance system and of welfare services (counselors, regular visiting officers, social workers, etc.); cessation of the food program, which provides an important component in the daily diet of students eligible for this service; and prevention of negative social encounters and environmental impacts, since school is the "Great Social Equalizer" as the main meeting place for students from different population groups. These effects are attested to by the findings of the Central Bureau of Statistics Civil Resilience Surveys (in waves 1–4): Twenty-seven percent of the respondents stated that their children's mental condition worsened, and the peak was measured during the second lockdown period, when a third of the respondents reported declines. Another area of harm to students was regarding their studies—a result of the reduction in study time relative to the regular routine and an increase in the dropout rate among different population groups.

Because of the negative effects of the closure of the education system, many countries abandoned the approach of complete closure of the education system during the 2020-21 school year, and moved to a scholastic continuity approach while avoiding, as much as possible, the widespread disruption of classroom learning. A comparison of the policy measures between Israel and other OECD countries shows that while Israeli students suffered from a significant disruption of studies, there are countries that succeeded in minimizing the harm to students.

Due to social distancing requirements, the Israeli education system suffered from a widespread disruption of studies. In contrast, many OECD countries managed to maintain a frontal learning routine.

⁴ Nachum Blass, "Opportunities and Risks to the Education System in the Time of the Coronavirus: An Overview", a chapter from the 2020 State of the Nation Report, Taub Institute.

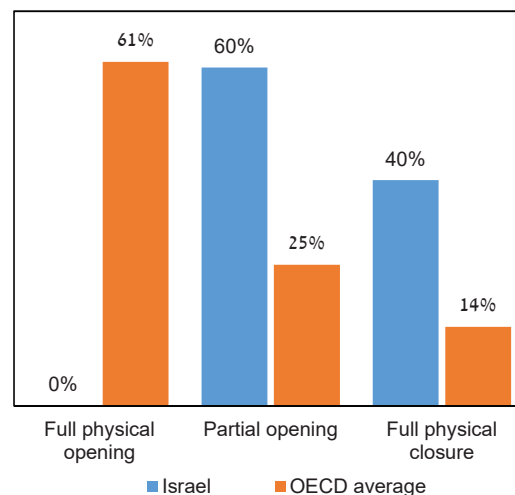
Until the end of February 2021, the education system in Israel did not operate in a full format in all age groups even for one day. The system was physically closed on 40 percent of the school days, when there was only distance learning. It was partially open on the other 60 percent of school days. In many OECD countries the picture is different: On about 60 percent of the school days on average, learning was conducted in a full classroom format in all age groups; there was complete physical closure on about 15 percent of school days, and schools were partially open on about 25 percent of school days (Figure 7.4).

This gap in the extent of the disruption of studies is due not only to policy but also to differences in the objective conditions between countries, and in particular to the crowding of school classrooms. However, given these conditions, it is important to consider solutions that are designed to return all students to classroom learning based on a reduction of the number of students in a class and with a reduction in teaching hours. Among the solutions proposed by education experts in Israel, and even implemented in some OECD countries, there is an outline for reducing class size through the use of public spaces and reducing teaching hours per student⁵, and an outline for a second shift, which saves on the need to build classrooms and adapt buildings, but significantly reduces teaching hours per student.⁶

b. The damage caused by the disruption of studies: findings from Israel and around the world

The widespread disruption of studies may have a long-term effect on students, particularly as a result of the decrease in the quantity and quality of human capital they will accumulate over the course of their lives. The main effect of the disruption of the

Figure 7.4
International Comparison of Education System Operation Policy, 2020–21 School Year



SOURCE: UNESCO data. The average number of school days on which each of the policy alternatives was used, minus vacation days. The simple average of all OECD countries. The calculation was made during the period from September 2020 to February 2021.

⁵ The ratio of students to full-time teaching positions in the 2020–21 school year was 15.0 in elementary school and 11.4 in high school.

⁶ N. Blass (2020). “The Education System in Israel in the Time of the Coronavirus: Three Alternative Frameworks”, a chapter from the 2020 *State of the Nation Report*, Taub Institute.

school routine on student achievement is through the loss of instruction time. Lavy (2015) examined the difference in the number of instruction hours and in scholastic achievement between different education systems around the world and found that instruction time in the core subjects positively and significantly affects students' achievements. One additional weekly instruction hour is equivalent to a standard deviation of approximately 0.15 in student achievements.^{7,8} In 2020, many studies were published that examined the effect of disruptions in the school year due to external events (epidemics, strikes, reforms, etc.). The main conclusion from the studies is that these events affected the students' education in the short and long terms, damage that was usually estimated at 0.2–0.4 standard deviations, depending on the length of the event and its nature.⁹ An examination conducted in the Netherlands during the first lockdown showed that despite the high accessibility of distance learning, the 8-week disruption of studies at that time resulted in an average decrease of 0.08 standard deviations in the students' achievements, and the loss of education of students from weak backgrounds was 55 percent greater than that of the others. The findings of the study show that distance learning during the first lockdown contributed almost nothing to mitigating in the damage from the loss of studies.¹⁰

In Israel, no comprehensive study has been conducted examining the effect of a disruption of studies on student achievement in the short or long term. An examination of past events indicates that there may be a correlation between disruption events and student achievement. In the 2007-08 school year, the Secondary School Teachers' Association held a strike for 48 school days, and the study routine of about 550,000 middle and high school students was disrupted. At the end of the strike, it was agreed, as part of a collective agreement, that teachers would make up all lost school days by shortening the holiday and summer vacations. Figure 7.5b presents the dropout rates in grades 7–12 in the Jewish and Arab education systems. The Figure shows that in the year of the strike, which is marked in gray, the dropout rate increased by one percentage point in both population groups. Figures 7.5b and 7.5c present the dropout rates in the transition between different grade levels in the Arab education system and in the Jewish education system, respectively. There is a clear difference between the dropout patterns in the two systems: In the Jewish education system, the highest

Past cases indicate that a widespread disruption of studies causes long-term damage to students' education.

⁷ V. Lavy (2015). "Do Differences in Schools' Instruction Time Explain International Achievement Gaps? Evidence from Developed and Developing Countries", *Economic Journal*, 125(588): 397–424.

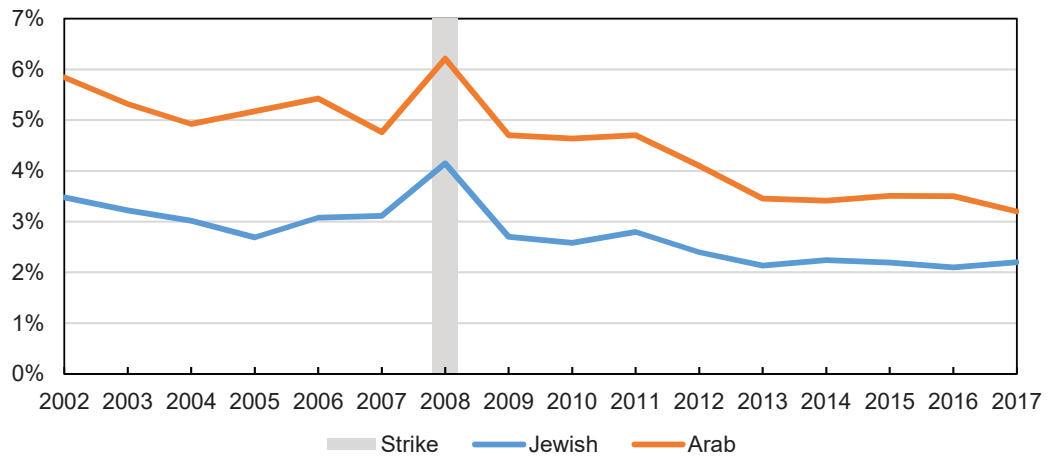
⁸ It is customary to refer to the addition of one school year as equivalent to one-third of a standard deviation.

⁹ W. Cook (2020). "school Disruption and Pupil Academic Outcomes – Evidence from the 2001 Foot and Mouth Disease Epidemic in England", MPRA Paper 102732, University Library of Munich, Germany; F. Hampf (2019). "The Effect of Compulsory Schooling on Skills: Evidence from a Reform in Germany" IFO Working Paper series 313, Leibniz Institute for Economic Research at the University of Munich; D. Jaume & A. Willén (2019). "The Long-Run Effects of Teacher Strikes: Evidence from Argentina", *Journal of Labor Economics*, 37(4): 1097–1139; K. Meyers and M. A. Thomasson (2020). "Can Pandemics Affect Educational Attainment? Evidence from the Polio Epidemic of 1916", *Clometrica*, 15(2): 231–265.

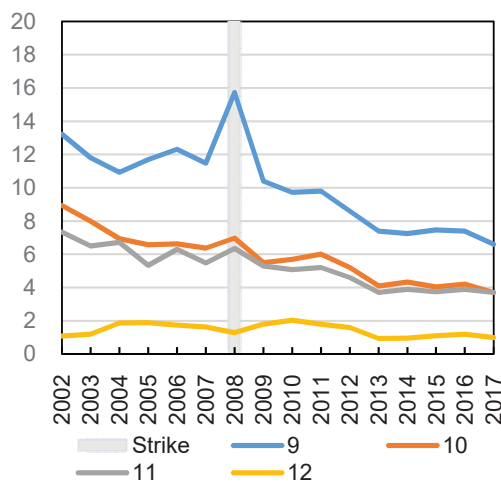
¹⁰ P. Engzell, A. Frey, and M. D. Verhagen (2020). "Learning Inequality During the COVID-19 Pandemic". Mimeo, University of Oxford.

Figure 7.5
School Dropout Rates

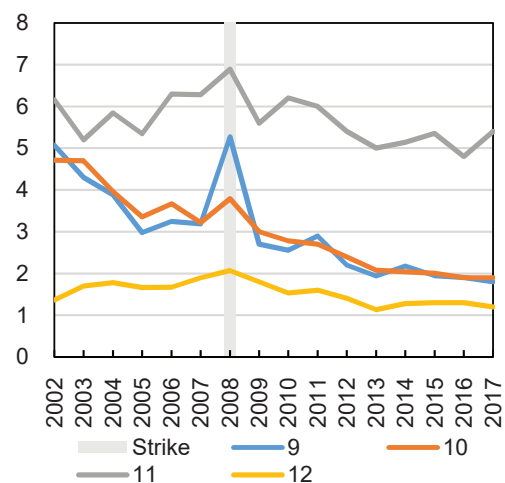
a. 7th–12th grades by population group



b. By class level over time, Arab



c. By class level over time, Jewish



SOURCE: Central Bureau of Statistics Statistical Abstract of Israel, Table 4.26 - 7th–12th grade students who dropped out of the Ministry of Education's education system, various years.

The Teachers' Association strike in 2008 was accompanied by an increase in the dropout rate from various secondary school grade levels.

dropout rate is in 11th grade, and in the Arab education system it is in 9th grade. In both groups, the dropout rate in most of the grade levels increased significantly, especially in the 9th grade (the transition between middle school and high school), where the rate increased by 2 percentage points in the Jewish education system and by one percentage point in the Arab education system.

Figure 7.5 deals with the short term, but it is important to examine whether the disruption of studies also has a long-term effect. For this purpose, we go back to two disruption events that took place during the 1970s and look at the education of those who were students at the time, based on data from when they were 50–60 years old. The first event is the Yom Kippur War. Some of the Jewish high school students were sent at the time to perform civil defense work and replace workers essential to the economy (in the areas of food, manufacturing, education, and security), and were absent from school for about a month and a half. This was not the end of the disruption of studies, as for about six months teachers were absent from work due to reserve duty.¹¹ Apart from the school shutdown, the war was a traumatic event for Israeli society due to the high number of deaths and the fear that prevailed, which was expected to make it difficult for students to concentrate on their studies. In order to deal with the disruptions, the internal exams in high schools were canceled, and the study material required for the matriculation exams was reduced. The second event is the lengthy teachers' strike of 1978. Secondary school studies were stopped for 45 calendar days, most of which (about 90 percent) were recovered in the same year at the expense of shortened vacations, while the rest were recovered in the following school years.¹² The question is: Did these events “scar” the cohorts that were affected by the disruption of studies?

Two disruptions of studies in the 1970s indicate long-term damage to students' education.

Figure 7.6 presents the average years of education of those born in Israel between 1953 and 1965, divided into the entire population excluding *Haredim* (ultra-Orthodox Jews), non-*Haredi* Jews, and Arabs. The events discussed occurred while these individuals were in high school. The gray areas mark the grade levels affected by the shock of the cessation of studies when they were in high school, and the blue line shows the average education of the entire population excluding *Haredim*. The figure shows that the average education of the entire population excluding *Haredim* decreased in both events, with differences in the impact between the groups.

To examine whether the impact of these events was significant, we estimated the following model:

$$Y_{it} = a_0 + a_1 \text{Trend} + a_2 \text{Trend}^2 + a_3 \text{shock}_t + a_4 X' + \varepsilon_{it}$$

¹¹ 11th and 12th grade students joined the civilian effort, which included protecting areas with sandbags and digging trenches, packing battle rations and replacing workers in essential areas (agriculture, food, ammunition, education, etc.). At the peak of the period, about 30,000 students—over half of the 11th and 12th graders in the Jewish education system—were employed, and other students were sent to help with various civic activities. Around the end of November, a return to routine began, but some of the students were still employed in tasks defined as national service, and the Ministry of Education renewed the activity of the Gadna institution, through which students were sent for 10 days to assist in agriculture. During 1974, it was decided to reduce the material and the number of matriculation subjects with the aim of lessening the effect of the disruption of studies. (Source: the “Maariv” and “Davar” newspapers in the period from October 7, 1973 to June 30, 1974; the National Library, Press Collection).

¹² Secondary School Teachers' Association (2009). *Fiftieth Anniversary of the secondary school Teachers' Association*, Yedioth Ahronoth Publishing.

where:

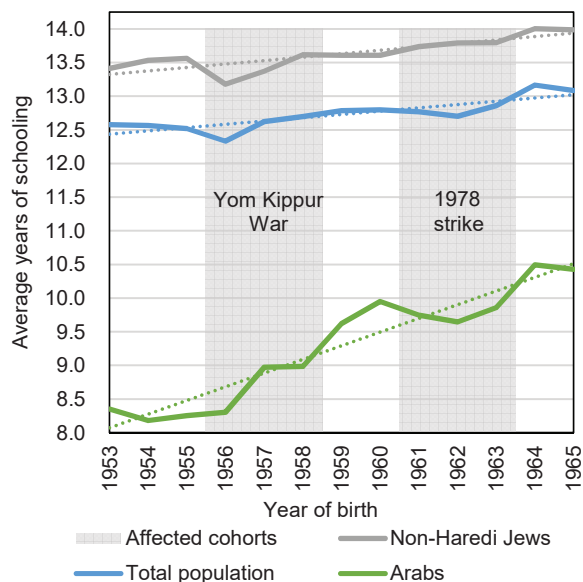
Y_{it} is the outcome variable of individual i born in year t . The outcome variables examined are: number of years of education; dropout or high school graduation without matriculation; eligibility for a matriculation certificate, and academic degree.¹³ Trend is the time trend, a variable designed to monitor the long-term increase in the population's level of education. Shock is a dummy variable, which receives the value 1 if the student was in secondary education at the time of the events, depending on the grade level (10th–12th) and 0 otherwise, and is a set of student characteristics: gender, nationality, and father's continent of origin. (This variable was omitted in calculations regarding the Arab sample.)

The results of the estimation show that students who were in 12th grade during the Yom Kippur War accumulated about a quarter of a year of schooling less than the trend, but no significant effect was found on the other age groups (students who were in grades 10 and 11). An examination of the difference between Jews and Arabs shows that the main impact was on Jewish boys—a loss of 0.3 years of education and about 4 percentage points in the rate of eligibility for a matriculation certificate. However, as we noted, the war may have had additional effects—fear, anxiety, etc.¹⁴ Therefore, we also examined the effect of the 1978 strike.

The results of the regression

on the effect of the strike revealed that students who were in 10th grade suffered a loss of one-fifth of a year of schooling, while those in 11th grade lost one-quarter of a year of schooling. In the Jewish education system the main impact was on 11th grade

Figure 7.6
Average Years of Schooling for Those Born in Israel between 1953 and 1965, and Events that Took Place While they were in Secondary School



SOURCE: Based on Central Bureau of Statistics Labor Force Surveys for various years.

¹³ The variables were calculated according to the type of the individual's last certificate.

¹⁴ There may be similarities between the additional effects of the war and those of the COVID-19 crisis, for at the beginning of the pandemic the government sowed fear among the public through predictions of "tens of thousands" of dead, and in the end the total number of deaths in the pandemic was higher than in the Yom Kippur War.

students, who lost 0.18 years of education, and in the Arab education system students who were in 11th grade and those who were in 10th grade were affected, with a loss of about 0.4 years of schooling in each of the grade levels, due to an increase in dropouts. This brief analysis shows that past disruptions of studies were correlated with long-term impairment of the students' education.

c. Disruption of studies during the COVID-19 Period

Unlike during past events, the COVID-19 disruption of studies came at a time of technological changes that enabled many countries to rapidly switch to distance learning methods to reduce the impact of the disruption of studies. This leads to the question of substitutability between classroom learning and distance learning. Studies examining the effectiveness of distance learning have produced conflicting results. There is evidence that learning that is tailored to the student's level may lead to improved achievement compared to traditional learning.¹⁵ However, the method adopted in Israel, which is defined in the literature as "distance frontal learning", is perceived as less effective than traditional learning.¹⁶ These studies analyzed a situation of orderly transition to distance learning during routine, but in view of the rapid transition to extensive distance learning during the COVID-19 period, it would not be unreasonable to assume that the proposed solutions were less effective.¹⁷ In a survey conducted by RAMA (The National Authority for Measurement and Evaluation in Education), about 80 percent of teachers indicated that they need professional development in distance teaching and learning, and only 37 percent of teachers and 40 percent of parents stated that the education system was able to cover the curriculum during period of distance learning.¹⁸ Segmentation by population groups and grade levels shows that in the opinion of the respondents, the highest effectiveness was among 7th–12th grade students in the Jewish education system, and the lowest effectiveness was among 1st–6th grade students in the Arab education system.

With the prolonged interruption of studies due to COVID-19, the literature began to deal with the differential effects of the disruption in education. The effectiveness of distance learning, which is supposed to mitigate the impact of the cessation of studies, depends very much on students' access to infrastructure (availability of a

The disruption of studies in the COVID-19 period differs from previous disruptions in that distance learning is possible, but it is likely that the rapid transition to the new learning method has resulted in lower achievements than frontal learning.

¹⁵ K. Muralidharan, A. Singh, & A. J. Ganimian (2019). "Disrupting Education? Experimental Evidence on Technology-Aided Instruction in India", *American Economic Review*, 109(4): 1426–1460.

¹⁶ Distance frontal learning includes a frontal lesson in which students participate remotely through various communication software. Out of a budget increase of approximately NIS 4.2 billion, the Ministry of Education chose to invest only about NIS 35 million in dedicated content adapted for distance learning, and most of the learning was done through frontal distance learning with a partial adjustment of the study materials. For more information on the subject: I. Chirikov, T. Semenova, N. Maloshonok, E. Bettinger, & R.F. Kizilcec (2020). "Online Education Platforms Scale College STEM Instruction with Equivalent Learning Outcomes at Lower Cost", *Science Advances*, 6 (15): eaay5324.

¹⁷ E. A. Hanushek & L. Woessmann (2020). "The Economic Impacts of Learning Losses".

¹⁸ RAMA (2020). "Teaching and Distance Learning During the COVID-19 Crisis –survey of Teachers and Parents". National Authority for Measurement and Evaluation in Education, October.

Gaps in the level of access to distance learning infrastructure and an environment that supports learning are expected to increase the socioeconomic gaps in student achievement.

quiet place to learn and a computer connected to the Internet) and assistance provided at home, which are greater in established households, as well as on the teachers' level of skill in the new teaching method.¹⁹ studies in the US and the UK show that the transition to distance learning was accompanied by a decline in student engagement and accessibility, and that the level of assistance was lower in low-income households. Another factor contributing to differential damage is the "peer effect", especially the loss of relationships with children from strong backgrounds and an increase in relationships with children from the same residential area.²⁰ According to the researchers, due to the multiplicity of these factors, not only do weak students not learn the new material, they are likely to suffer a loss of some of the knowledge they have gained so far due to the prolonged disruption of studies (similar to the impact of summer vacations). In terms of achievement gaps, the researchers estimate that households with a higher socioeconomic rating can more easily adapt to the new learning method, thanks to an environment that is more supportive of this method of study (good infrastructure, assistance from parents, private tutors, etc.). Based on data from the United States, according to Doepke et al. (2020), the disruption of studies in the 2020-21 school year may cause students from weak backgrounds to lose knowledge equivalent to 1.2 years of schooling (0.4 standard deviations), while students from strong backgrounds will not be affected at all.

Preliminary data from Israel also indicate differential harm to students. A survey of 6,000 teachers in Israel found that 75 percent felt that distance learning was less effective than frontal learning, and 73 percent stated that distance learning harmed students from weak socioeconomic backgrounds.²¹ These data on differential harm are supported by findings from a long-term household survey, which show that the higher the parents' education or income, the more likely it is that the child will receive homework assistance from them and the more likely they are to receive private lessons from an outside source. The survey shows that the gaps in assistance provided to students whose parents have academic degrees compared with those whose parents do not, widen as the students progress through the levels of education.²²

Many researchers have simulated the extent of the damage expected due to the disruption of studies in 2020. These reports indicate that in order to minimize the impact, policy must reduce the duration of school closures, make distance learning more accessible for students, and increase the effectiveness of distance learning.²³

¹⁹ J. Anders, L. Macmillan, P. sturgis, & G. Wyness (2020). "Homeschooling During Lockdown Deepens Inequality". LSE COVID-19 blog.

²⁰ F. Agostinelli, M. Doepke, G. Sorrenti, & F. Zilibotti (2020). "When the Great Equalizer Shuts Down: Schools, Peers, and Parents in Pandemic Times", National Bureau of Economic Research Working Paper No. 28264.

²¹ Taub Institute (2020). Press Release: Survey of Teachers Unionized under the Teachers' Union.

²² Central Bureau of Statistics (2020). Press Release: Parental Involvement and Academic Success – Findings from a Long-Term Survey 2012–2017.

²³ J. P. Azevedo, A. Hasan, D. Goldemberg, S. A. Iqbal, & K. Geven (2020). "Simulating the Potential Impacts of COVID-19 School Closures on Schooling and Learning Outcomes: A Set of Global Estimates". The World Bank, 2020.

Hanushek & Woessmann (2020) use international data to estimate the disruption of studies due to COVID-19. Their assessment is that the disruption is expected to “scar” the cohorts affected by the widespread disruption of studies, and that a loss of education equivalent to a quarter to two-thirds of a school year is expected to reduce future student income by 2–5 percent. In Israel, in the period between March 2020 and March 2021, schools were physically closed and operated in a distance learning format 40–90 percent of the time, depending on the grade level. The degree of effectiveness of distance learning during the COVID-19 period, and future policies to reduce the education loss, will affect the extent of damage expected for Israeli students.

In conclusion, the policy for operating the education system in the 2020-21 and 2021-22 school years may have long-term effects, which will be reflected in a decrease in the income of the affected individuals throughout their working lives and an increase in inequality. In addition, the difference in the degree of disruption of studies between Israel and other OECD countries, which managed to maintain relatively continuous activity in their education systems, may increase the achievement gaps between the affected cohorts in Israel and their OECD counterparts. These findings raise the need for a re-examination of the government’s education policy, as the harm to students is expected to be long-term. Policies should therefore strive to maintain as regular a learning routine as possible, while adopting alternative solutions for maintaining social distance. In order to optimally deal with future events of widespread disruption in studies (for example due to security emergencies), it is recommended to act in a number of ways:

- Improve the distance learning system:
 - Improve students’ access to end devices and to communication infrastructure;
 - Training for teaching staff – The majority of teachers felt the need for professional development in the field of distance learning;
 - Adapt study materials to distance learning – The greatest benefit is from educational computer programs that are adapted to the student’s level. It is advised to invest in such tools.
- Reduce the impact on studies in general and for groups at increased risk of dropping out in particular:
 - Arrangements with teachers’ organizations regarding the substitution of the education system’s vacation dates and the system’s days of closure in order to increase the number of frontal school days.
 - When a decision is made to return to school, first focus on the groups at increased risk of dropping out, for example 9th graders who are in the transition phase between institutions.

In addition to the above, in order to reduce achievement gaps, it is recommended to increase the budgeting of programs to reduce the gaps in the education system, in

If no policy measures are taken to reduce the achievement gaps that are due to the COVID-19 period, students may suffer long-term damage to their earning capacity, and the skill gaps between Israel and the OECD are expected to increase.

view of the strong negative impact of the disruption of studies on students from weak social backgrounds.

Another adverse effect of the disruption of studies during the COVID-19 period is the harm to working parents, who were required to assist children extensively in coping with the unique schooling situation that prevailed in 2020. Findings from the Central Bureau of Statistics' long-term survey show that on a regular basis, mothers have a higher degree of involvement than fathers. The next section discusses gender differences in the impact of COVID-19.

PART 3: GENDER DIFFERENCES IN THE IMPACT OF COVID-19

The increase in the share of women temporarily absent from work in comparison with their rate in the corresponding months in 2019 was greater than that of absentee men.

Due to the special nature of the COVID-19 pandemic and the restrictions imposed to prevent its spread, the impact on employment was not uniform. Therefore, among other things, in the first months of the crisis, it seemed that women's employment was affected more than men's employment: Compared to the corresponding months in 2019, the actual rate of employment among women declined more than the rate of employed men, mainly because the rate of temporarily absent women exceeded the rate among men (Figure 7.7).

Moreover, for men, the sharp decline in the rate of full-time employees in March and April was partially off set by an increase in the rate of part-time employees (a change that probably reflects a reduction in the number of working hours and not a complete absence).²⁴ No similar change was observed among women. After the first lockdown ended, the women's absentee rate declined more rapidly than the men's absentee rate, so that in late August the absentee rates for women and men were similar to their rates in 2019. The change in the absentee rates reappeared in September, possibly due to restrictions regarding education. The increase in absentee rates among parents (both mothers and fathers) of young children was greater than among others. Another analysis shows that the increase in absentee rates among single parents was greater than that of parents living with a spouse.

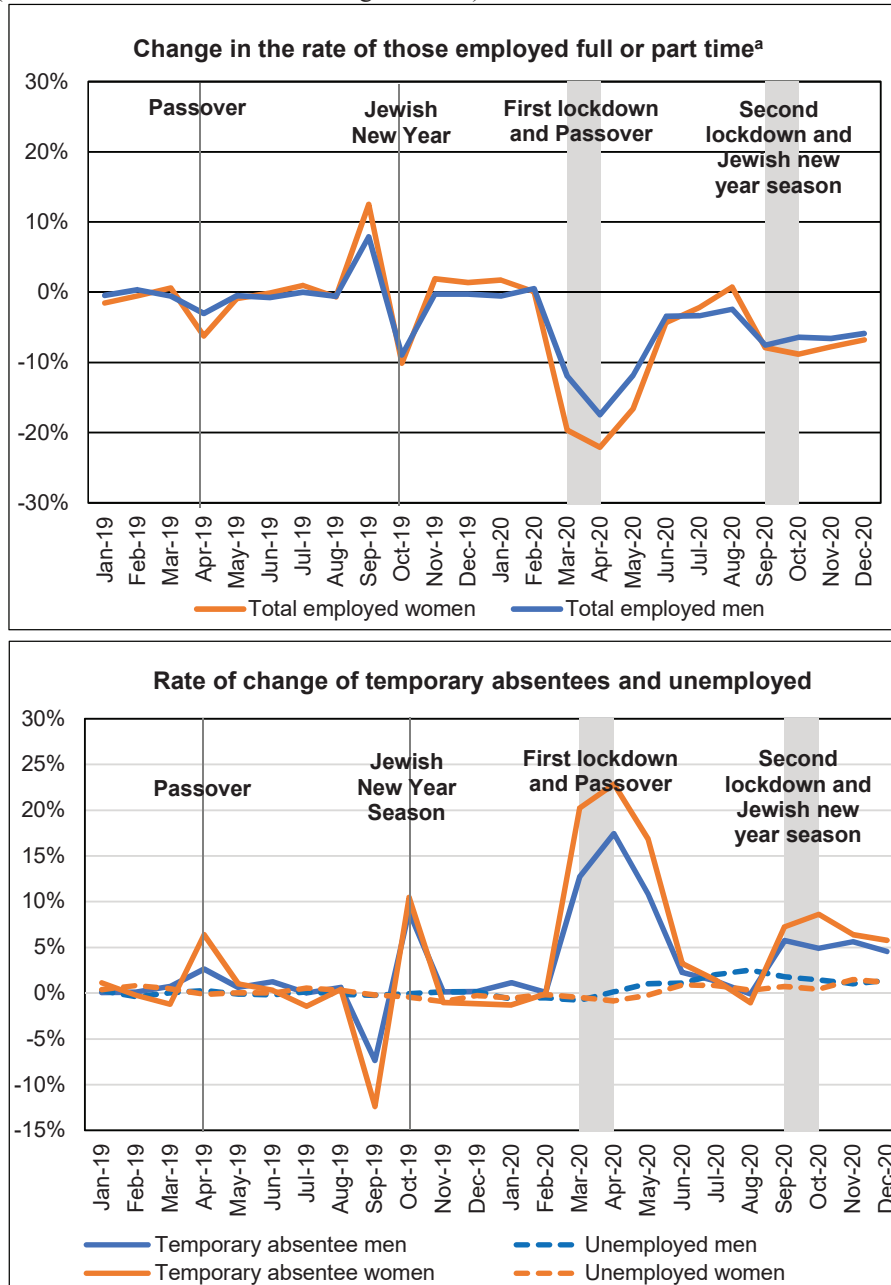
Of those who were employed in the corresponding month in 2019, women were absent more than men in 2020, and the gap was particularly pronounced among the relatively young ages and at the beginning of the crisis.

Table 7.1 presents the changes in the employment status of non-*Haredi* Jewish women and men who were employed in the corresponding month in 2019. Women were absent more than men, and the gap was particularly pronounced among the relatively young ages and at the beginning of the crisis. Women, and especially young women, mothers of young children, and women of childbearing age, tend to be absent more than men with similar characteristics even in periods of routine. The gap between women and men in absentee rates is particularly pronounced during the holiday months and the summer vacation (especially in August). This pattern is consistent with the fact that many women are the primary caregivers in their families (at a young age for childcare and at older ages due to the care for other family members

²⁴ This comparison is based on a comparison of aggregate employment rates in each of the months, and therefore presents the net changes. This means that it is not possible to distinguish between different types of transitions between employment statuses.

Figure 7.7**Change in Employment Status Compared to the Corresponding Month of the Previous Year, 2019–20**

(Non-Haredi Jewish individuals aged 25–64)



^a Not including those temporarily absent from work. In September and October 2019 there was an anomalous change compared with September and October 2018, apparently due to differences in the timing of the Jewish New Year holidays.

SOURCE: Based on Central Bureau of Statistics Labor Force Surveys.

Table 7.1**Change in employment state, individuals who were employed in the previous year**

(percentage of total employed persons in the previous year)

	Women aged 25–49				Women aged 50–64			
	March	April	December	COVID-19 period average ^a	March	April	December	COVID-19 period average ^a
Not in the labor force	3%	2%	4%	3%	3%	4%	5%	5%
Unemployed	1%	1%	4%	2%	-	-	2%	1%
Temporarily absent from work	18%	37%	11%	16%	19%	35%	9%	14%
Employed full or part time	78%	60%	81%	78%	78%	60%	83%	79%

	Men aged 25–49				Men aged 50–64			
	March	April	December	COVID-19 period average ^a	March	April	December	COVID-19 period average ^a
Not in the labor force	2%	4%	1%	2%	4%	5%	2%	3%
Unemployed	1%	2%	3%	3%	-	-	4%	2%
Temporarily absent from work	13%	23%	7%	10%	12%	26%	9%	11%
Employed full or part time	84%	72%	89%	85%	83%	68%	85%	83%

- Few observations, accounting for about 1 percent.

^a Average of the months March to December 2020.

SOURCE: Based on Central Bureau of Statistics Labor Force Surveys.

as well, especially the elderly). However, the gap in the absentee rate between women and men at the beginning of the COVID-19 period was significantly higher than the gaps in the corresponding period in 2019. The gaps between the rate of young women who became unemployed or nonparticipants and the rate of men who became unemployed or nonparticipants were not stable throughout the period. This means that there was probably no noticeable gender difference in leaving the labor force and in unemployment (among non-*Haredi* Jews who are not close to retirement age).

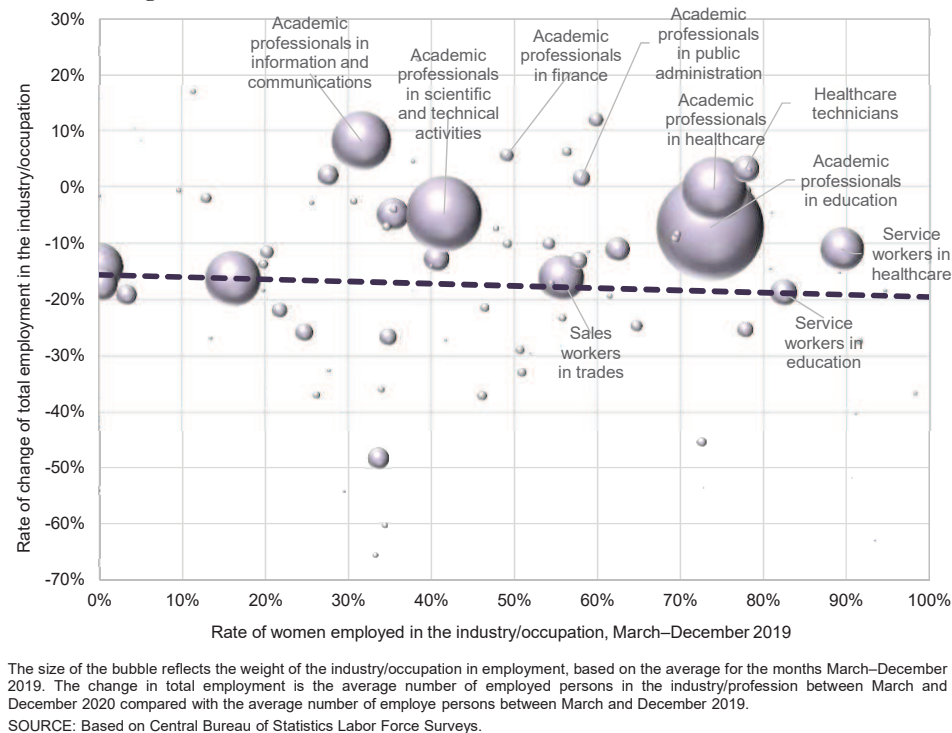
In the older group, aged 50–64, there were also significant gaps between men's and women's absentee rates at the beginning of the period, but they narrowed later on. Due to differences in retirement ages, we would expect women to retire from the labor force more than men, but the differences in retirement rates are not stable over the period.

Differences in how COVID-19 has impacted the employment of men and women have also been found in other developed countries²⁵, particularly at the beginning of the crisis, and have raised the question as to the source of these gaps. Beyond the differences in the traditional roles of women and men in caring for children and other family members (which could have contributed to the widening of the gender gap during the COVID-19 period, when the burden of care increased), some studies around the world indicate gender differences in the distribution of occupations and industries affected. Industries in which more women are employed have suffered from

The correlation between the rate of women employed in an industry/occupation and the intensity of the impact on employment therein is positive, but slight.

²⁵ T. M. Alon, M. Doepke, J. Olmstead-Rumsey, & M. Tertilt (2020). "The Impact of COVID-19 on Gender Equality", National Bureau of Economic Research, working paper No. w26947.

Figure 7.8
Women's Employment and Rate of Change in Total Employment During COVID-19,
Individuals Aged 25–64



a greater decline in employment. Figure 7.8 presents the rate of change in the number of employees according to a combination of occupation and industry in accordance with the rate of women employed therein. The size of the bubbles represents the size of the industry according to the number of employees in the corresponding period in the previous year (March–December 2019). As can be seen, the correlation between the rate of women employed in the industry/occupation and the intensity of the impact on employment in it is positive, but slight. Part of the explanation for the low correlation is the high rate of women employed in public services and in essential occupations, whose employment was not affected during the COVID-19 period, and in some cases even increased. Along with the advantage of relatively secure employment in essential industries and occupations, it also posed a difficulty, as it placed women at the forefront of the fight against the pandemic and significantly increased their risk of infection and isolation.²⁶

We have therefore seen that occupations and industries with a high rate of female employees have not been affected more than other occupations and industries. Moreover, it seems that the impact on men's and women's employment within most of the occupations and industries was similar, with a number of notable exceptions.

In most large industries and occupations the changes in the employment of women and men were similar.

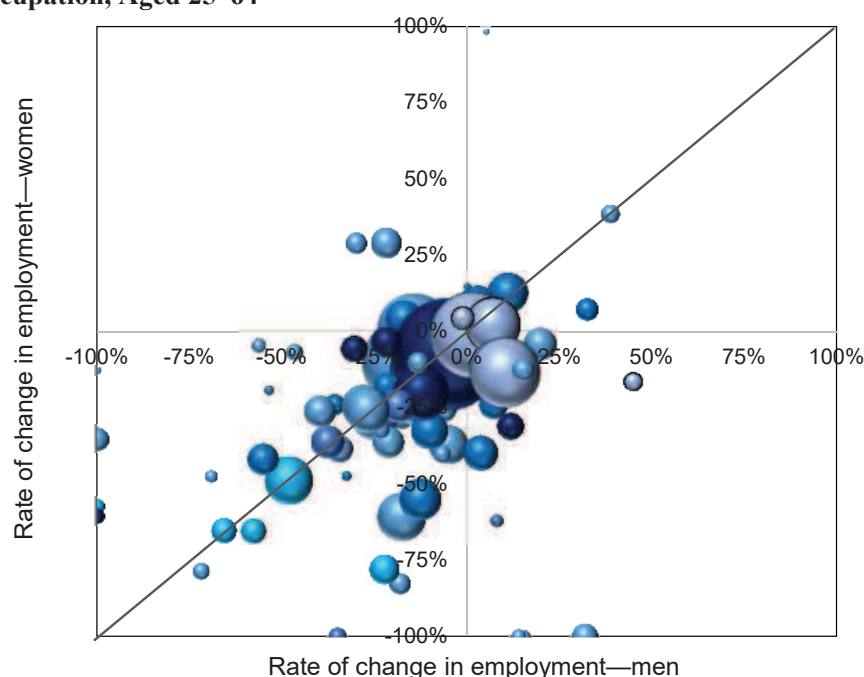
²⁶ OECD (2020). "Women at the Core of the Fight Against COVID-19 Crisis".

Figure 7.9 presents a comparison between the rate of change in the number of employed women in each industry/occupation and the rate of change in the number of employed men. Most of the industries/occupations are situated around the 45-degree line, which means that in most significant industries the changes in the employment of women and men were similar.

Gender differences can be reflected not only in the number of employees (extensive margin) but also in the number of work hours (intensive margin). In Israel, as in other

The decrease in the average work hours of women was similar to that of men, and the gap between them did not widen.

Figure 7.9
Changes in the Number of Employed Individuals by Industry and Occupation, Aged 25–64



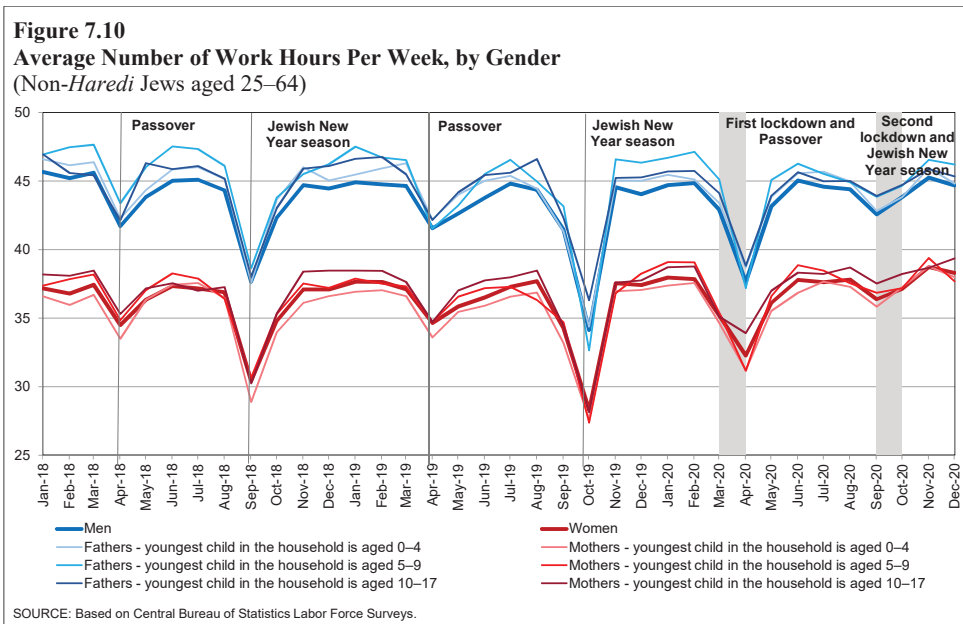
Each bubble represents a combination of industry and occupation, and the size of the bubble represents its average weight in total employment in 2019.

SOURCE: Based on Central Bureau of Statistics Labor Force Surveys.

developed countries, there is a significant gap between women and men in the average number of work hours, but the gap has slowly been narrowing over the years. Given the gender gaps in wages and in the distribution of domestic care and unpaid work, it was expected that the crisis would affect women, and especially mothers, more than men, and that the decline in their average working hours would be more notable. Figure 7.10 presents the average number of work hours of women and men according to their marital status. The pronounced difference is between men (the blue lines) and women (the red lines), while marital status within each gender has much less of an effect. Among men, fathers worked slightly more than average in most months, and

among women, the differences between mothers and nonmothers were not significant. The figure shows that around the Jewish New Year holiday season and Passover, the average work hours of both men and women declined significantly, probably due to the shortened work hours on the holiday eves and during the intermediate days of the holidays. The decline in September-October 2019 was particularly sharp. At the beginning of the COVID-19 period, during the first lockdown, the decline in work hours around Passover was greater than in previous years. However, the decline in the average work hours of women was similar to that of men, and the gap between them did not widen. During the second lockdown period, in September-October, the decline in average work hours was more moderate than during the Jewish New Year season in previous years. The figure also shows that parents (both fathers and mothers) whose youngest child is aged 10 to 17 worked longer than average hours. Mothers of toddlers (up to age 4) usually work fewer hours than other women, but this gap narrowed during the COVID-19 period.

In conclusion, it can be said that during the lockdown periods, which mostly overlapped the holiday periods, women's employment was affected more than that of men, and more women were absent from work. There is no evidence that this effect



was due to the composition of the occupations and industries that employ women compared to men. There is also no noticeable widening of the gap between women and men in terms of the reduction in work hours. Nevertheless, it is possible that women have been harmed more than men in other dimensions, such as the increase in the caregiver burden and the increase in domestic violence, on which we do not have data at this stage.

PART 4: THE ELDERLY IN THE COVID-19 PERIOD

In 2020, there were about 930,000 elderly individuals aged 65 and over living in Israel²⁷, about half of them in two-person households. About a quarter of them (mostly women) lived alone, and another quarter lived in households that also include others: caregiver, children, or other family members (Table 7.2).²⁸ Among the relatively young elderly, those aged 65–75, about a quarter were employed in the last three quarters of 2019. Only about 20 percent of the elderly were employed during the “COVID-19 months” of March–December 2020. Men living alone had notably higher employment rates, both before and during the crisis. According to data from the 2018 Household Expenditure Survey, the elderly living with a spouse or with others had relatively high representation in the top income quintile. Compared to them, almost a third of the elderly living alone are in the bottom income quintile, which usually means that they are below the poverty line. These individuals are especially vulnerable even in normal times, because of their difficulty in covering expenses.

From the beginning of the pandemic, it was clear that the elderly population is the most vulnerable to severe morbidity and its complications. In addition, social distancing requirements and the fear of infection reduced the social relationships of the elderly and increased the feeling of loneliness and distress, especially among the elderly living alone. Compared to selected countries in Europe²⁹, the population aged 60 and over in Israel in 2017 is relatively young but suffers from disease in greater numbers on average, which may increase the risk of severe COVID-19 illness, and takes more medication. The objective health indices are contrary to the subjective assessment of those surveyed. More adults in Israel report that they are in excellent health. Israel leads in all social and psychological indices: The elderly in Israel are more active, more employed, less neurotic, less isolated, and have family backing (although a relatively large proportion of them report a feeling of loneliness). However, it is pothat the transition of the Israeli elderly from a relatively active lifestyle to a more isolated and passive routine may present them with a greater challenge than the elderly whose lifestyle was more isolated and passive before the crisis.

The Civil Resilience Survey conducted by the Central Bureau of Statistics shows a multidimensional impact on the condition of the elderly, with most of the elderly respondents answering that they were concerned that they would not be able to cover

About half of the elderly reported that they were very concerned that they would not be able to cover their expenses.

²⁷ Different publications in Israel and around the world used different definitions of the elderly population, according to context. For the most part, when the focus of the discussion was health, the elderly were defined as aged 60 and over, the age group found to be particularly vulnerable to COVID-19. Other publications have referred to the elderly population as those over retirement age (62 for women and 67 for men). In this chapter, for the sake of simplicity of presentation and consistency with other chapters, we will define the term as men and women aged 65 and over.

²⁸ We do not have data regarding the elderly in assisted living facilities.

²⁹ M. Lewinsky (2020). “Characteristics of the Elderly Population in Israel and Europe in the Context of the COVID-19 Crisis”. Knowledge Center for the study of the Aging Population in Israel. Review based on data from the fifth wave in Israel (seventh wave in Europe) of the SHARE project—the survey of Health, Aging and Retirement—which includes populations aged fifty and over in European countries and in Israel.

Table 7.2

Attributes of the elderly (65+)

Attributes of the elderly (65+)	Total elderly ^a	Live with spouse	Live alone		Others ^b
			Women	Men	
Data from 2020 Labor Force Survey					
Number of individuals ^c	927,196	458,021	179,381	57,239	232,555
Percentage of total elderly		49	19	6	25
Age	74.7	73.3	77.0	76.9	75.2
Arabs (percent)	8%	6%	6%	1%	16%
Haredim (percent)	3%	4%	2%	2%	3%
Home ownership	79%	83%	70%	59%	82%
Aged 65–74					
Employed ^d March–December 2019	25%	25%	22%	28%	25%
Employed ^d March–December 2020	21%	21%	18%	25%	21%
Aged 75+					
Employed ^d March–December 2019	3%	4%	1%	3%	2%
Employed ^d March–December 2020	3%	4%	2%	3%	2%
Data from 2018 Household Expenditure Survey					
Lowest quintile (percent) ^e	18%	16%	31%	30%	12%
Second quintile (percent)	20%	20%	18%	23%	19%
Third quintile (percent)	17%	16%	14%	19%	19%
Fourth quintile (percent)	20%	19%	14%	15%	26%
Highest quintile (percent)	25%	29%	23%	14%	24%
Very peripheral	2%	2%	3%	1%	1%
Peripheral	10%	10%	11%	11%	11%
Intermediate localities	20%	19%	19%	21%	21%
Central	23%	22%	30%	23%	22%
Very central	46%	47%	39%	44%	45%
Has private health insurance	32%	37%	19%	19%	35%
Expenditure on private health insurance as a share of net income	3%	3%	5%	4%	2%
Expenditure on private health insurance as a share of total consumption expenditure	2%	2%	3%	3%	2%

^a Individuals above age 65.^b Including elderly who live in a household with a caregiver, children, or spouse and others.^c Data are from February 2020.^d Rate of those actually employed full or part time (excluding absentees).^e Quintiles of net equivalized individual income (20 percent of individuals are in each quintile).

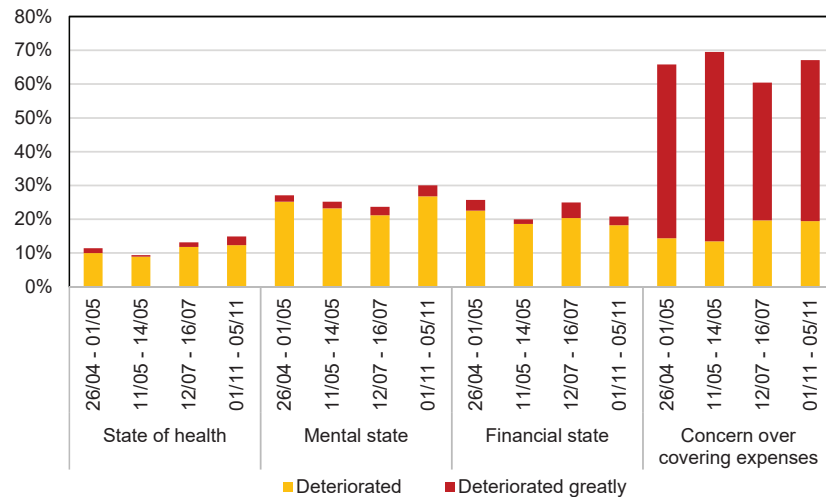
SOURCE: Central Bureau of Statistics Labor Force Surveys and Household Expenditure Surveys.

their expenses. Unlike other questions in the survey, what stands out in this question is the intensity of the concern: Almost half of those surveyed indicated that they were very concerned (Figure 7.11).

Compared to the general population, more of the elderly reported that their health deteriorated, and fewer elderly reported a worsening of their financial situation. This is because most of the impact on household income was due to developments in the labor market, by which most elderly are less directly affected because they do not work (Figure 7.12). The differences between the elderly living alone and other elderly people are noticeable: A relatively large proportion of those living alone reported a deterioration of their health and mental state, and a relatively small proportion

Compared to other elderly, more elderly persons living alone reported a deterioration of their health condition, and less of a deterioration of their financial situation.

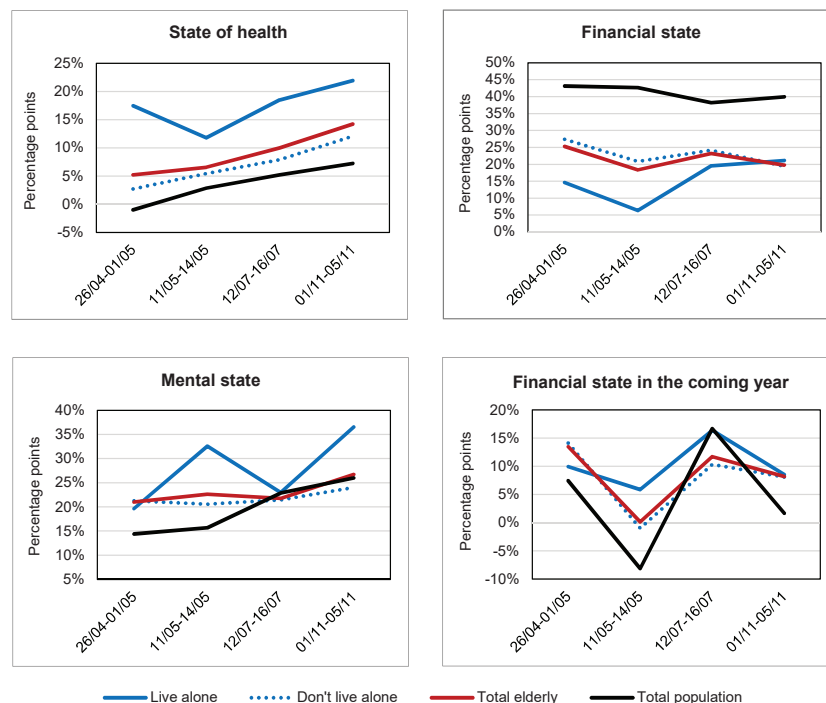
Figure 7.11
Multidimensional Deterioration in the State of the Elderly Due to the Crisis^a



^a The respondents were asked about their condition relative to their precrisis condition ("Compared to your state of health prior to the crisis, how would you describe your state of health today?" "Compared to your mental state prior to the crisis, how would you describe your mental state today?" "Due to the COVID-19 crisis, to what extent has your financial state and that of your household changed?" In the "Concern over covering expenses" category, the data relate to the rate of those who responded to the question "To what extent are you concerned about difficulty in covering expenses?" that they are concerned to a great extent or to some extent.

SOURCE: Central Bureau of Statistics Civil Resilience Survey.

Figure 7.12
Net Balances^a of Deteriorations in Health, Mental, and Financial States Among the Elderly



^a The net balance is the difference between the rate of respondents whose situation has deteriorated and the rate of respondents whose situation has improved.

SOURCE: Central Bureau of Statistics Civil Resilience Survey.

reported a worsening of their financial situation. It should be emphasized that this figure presents the net balances, which indicate an increase in the rate of reports of a deterioration of their health and mental state and not an increase in the intensity of the aggravation. It can therefore be assumed that this increase reflects the impact of the COVID-19 crisis rather than the routine and expected deterioration in the condition of the elderly in the aging process.

PART 5: THE ARAB SECTOR

a. The economic situation of the Arab sector on the eve of the crisis

The Arab sector was economically vulnerable even before the crisis. Many characteristics of this sector have severely limited its ability to deal with shocks relative to the rest of the population. Table 7.3 summarizes the main differences between Jews and Arabs in various socioeconomic variables. The table shows that one of the main factors making it difficult for Arabs to absorb shocks is their low income, which minimizes their ability to save in times of distress. According to the Central Bureau of Statistics Household Expenditure Survey for 2018, the average net monthly income of an Arab household is about NIS 12,000, compared with about NIS 18,000 among Jews, a difference of about 32 percent.³⁰ About 45 percent of Arab households had incomes that were below the poverty line. This income gap also means a gap in economic resilience, as the low income of Arab households makes it difficult for them to save for periods of economic downturn.

The Arab sector was economically vulnerable even before the crisis, due to the low income of many households.

Some of the income gaps between Jewish and Arab households are due to the fact that many families in the Arab sector have a single wage earner. This makes it difficult to smooth economic shocks, because one spouse's employment provides partial protection against harm to the employment of the other wage earner. The gap between Jews and Arabs is particularly pronounced among those children. In the Arab sector, only 29 percent of the families with children have both parents working, compared with 66 percent in the Jewish sector, due to Arab women's lack of participation in the labor market. In 2018, only about 38 percent of Arab women in the prime working ages (25–64) were employed. The relatively high number of children also makes it difficult for Arab families to achieve economic resilience.

Another aspect that affects the economic resilience of the Arab population is the high volume of temporary and seasonal jobs. In 2016, about 56 percent of Arab workers reported employment without a contract or employment with a manpower

³⁰ The hourly wage gap between Jews and Arabs is large—about 37 percent in 2018. studies have shown that most of the hourly wage gap (about two-thirds) is due to the low education and skills of the Arabs participating in the labor market. see Y. Hecht (not yet published), "Dissolution of the Wage Gap between Jewish and Arab Men"; Bank of Israel (2019), "Research Department Special Report: Raising the Standard of Living in Israel by Increasing Labor Productivity".

company, compared with 28 percent of Jewish workers. That year, 9 percent of Arabs reported receiving a daily wage (rather than a monthly or hourly wage), compared with 2 percent of Jews.³¹ These are jobs of a temporary and volatile nature, which do not provide employees with a steady income stream that enables long-term economic planning. Moreover, in times of crisis it is relatively easy to reduce hours or cut wages.

Most of the families in the Arab sector have only little savings that can serve as a safety net. Findings from the Central Bureau of Statistics' long-term household survey in 2018 indicate a liquidity crisis and a lack of savings in this sector. Almost 40 percent of Arab households reported being in debt, compared with 10 percent in Jewish society, and only a small part of the Arab population (11 percent) reported that they manage to save, compared with 38 percent in the Jewish sector (Figure 7.13).

We used the Household Expenditure Survey for 2018 (the latest available) to examine the extent to which the low volume of savings among Arabs can be explained by the characteristics of the individuals. For this purpose, we adopted two different definitions of savings—reported savings and actual savings. Reported savings (according to the Central Bureau of Statistics definition) is the total amount of payments that households transfer to tangible and defined savings channels such as advanced study funds, provident funds, savings plans, and mortgage other loan repayments.³²

The disadvantage in the definition of reported savings is that it does not include the savings accumulated in current accounts because it is difficult to document them. The actual savings are defined in another way: the total gross financial income net of mandatory payments (taxes and national insurance contributions) and current expenses on consumption and on transfers to other households. The savings gap (in shekels) between Jewish and Arab households was examined according to the two definitions. An estimate was then made examining the extent to which the savings gap between Jews and Arabs is explained by household income and other characteristics such as home ownership, age, marital status, employment and education of the head of the household, the number of persons, and the number of wage earners.

In 2018, 40 percent of Arab households reported being in debt, compared to only 10 percent in the Jewish sector, and only a small proportion of Arabs reported that they were able to save.

³¹ Based on the Central Bureau of Statistics Social Survey, 2016.

³² This also includes life insurance, managers' insurance, real estate investments, debt and loan repayments, monetary differentials from the sale and purchase of furniture, equipment, motorcycles, and cars. The payments in the financial savings channels do not include employers' contributions.

Table 7.3**Difference in the attributes of Jewish and Arab households and individuals^a, 2018**

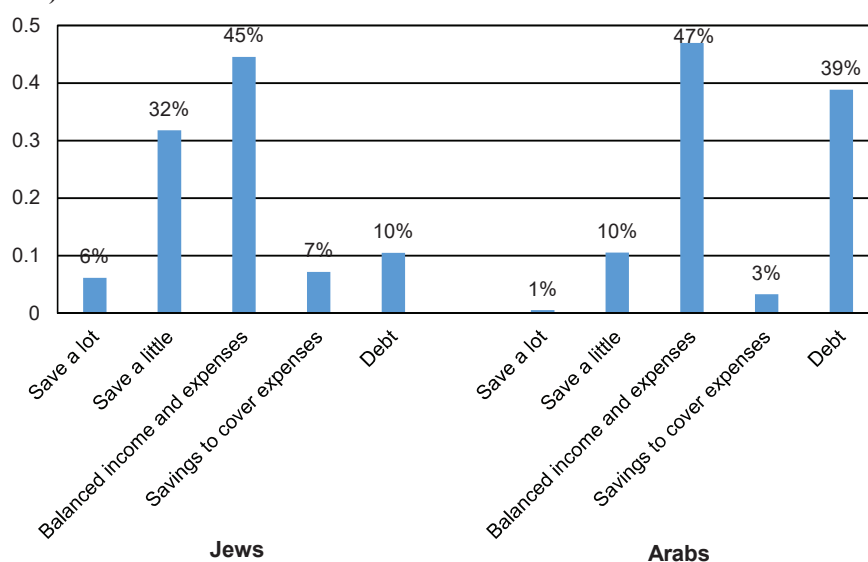
	Jewish	Arab
Gross monthly income (NIS)	20,046	11,883
Net monthly income (NIS)	18,132	12,260
Rate of households whose income is below the poverty line	0.13	0.45
Rate of households where both parents work (among households with children up to age 18)	0.66	0.29
Number of children up to age 18 per household with children	2.33	2.68
Hourly wage of men (NIS)	62.67	39.51
Employment rate of men	0.86	0.77
Employment rate of women	0.82	0.38
Rate of people employed without a contract or at a manpower company (among salaried employees, 2016) ^b	0.28	0.56
Rate of people employed as day laborers (among salaried employees, 2016) ^b	0.02	0.09
Years of schooling	14.89	11.78
Rate of those with a matriculation certificate or higher	0.75	0.48

^a Data are taken from the 2018 Household Expenditure Survey, unless otherwise noted. Data at the household level are calculated for all households. Data at the individual level are calculated for individuals in the primary working ages (25–64).

^b Social Survey of Israel.

SOURCE: Based on Central Bureau of Statistics.

Figure 7.13
Which of the Following Best Describes Your and Your Family's Situation?
(2018)



SOURCE: Based on Central Bureau of Statistics Long-Term Household Survey (sixth wave, 2018).

Table 7.4 shows that the total average reported savings in an Arab household is about NIS 1,300, less than a quarter of that in a Jewish household. Moreover, the actual savings in the Arab sector are (according to the above definition) a negative amount of NIS 1,700. This means that the average Arab household is in debt, compared to actual average savings of about NIS 4,400 among Jews. The savings gaps are considerably reduced when the low incomes of the Arabs and their characteristics are taken into account (but still remain significant and statistically significant). An average Arab household actually saves about NIS 2,100 a month less than a Jewish household with similar income, employment, home ownership, education, and demographic characteristics. The corresponding gap in reported savings is about NIS 2,700 a month. Due to many limitations in the quality of data on savings and consumption based on self-reporting, the numerical estimates should be considered with caution. However, the general picture of the savings gaps between Jews and Arabs remains consistent and significant in all definitions and estimates.

In 2018, a significant number of households in the Arab sector reported that they operate without a bank account or that their bank account is blocked for use.

Another notable finding in the long-term Central Bureau of Statistics survey is the high rate of Arab households that do not have bank accounts (12 percent), compared with a tiny percentage in the Jewish sector (1 percent). In addition, the rate of Arab sector households that reported that their bank accounts are blocked is 6 percent, three times the corresponding rate in the Jewish sector (Figure 7.14).³³ Forty-one percent of Arabs with blocked accounts have had their accounts blocked for more than a year, compared with 12 percent among Jews. Individuals without an active or accessible bank account operate almost exclusively with cash and are particularly vulnerable. It is almost impossible for them to get loans in legal ways, and in times of distress they are forced to turn to relatives or unregulated entities. Operating without bank

Table 7.4
Savings among Jewish and Arab Israelis (2018)

	Reported savings ^a	Actual savings ^b
Jewish Israelis (average)	5,823	4,344
Arab Israelis (average)	1,344	-1,673
Gap between Jewish and Arab Israelis, gross	4,479	6,017
Gap between Jewish and Arab Israelis after accounting for income differences ^c	2,719	2,676
Gap between Jewish and Arab Israelis after accounting for differences in income, education, home ownership, and employment and demographic variables ^d	2,909	2,093

^a Reported savings are savings according to the Central Bureau of Statistics definition in the Income and Expenditure Surveys. These are savings in savings plans, provident funds, pension funds, life insurance, managers' insurance, real estate investments, repayments of mortgages and housing loans, vehicle purchases, debt repayments, and monetary differentials between purchasing and selling furniture, vehicles, and other equipment.

^b Actual savings are calculated as net monetary income minus expenses on current consumption.

^c The coefficient of the dummy variable for "Arab" in the estimation of the regression on total savings, after controlling for the level of disposable income.

^d The coefficient of the dummy variable for "Arab" in the estimation of the regression on total savings, after controlling for disposable income, the number of people and number of wage earners in the household, and the age, education, employment, and family status of the head of household.

SOURCE: Based on Central Bureau of Statistics Household Expenditure Survey.

³³ Households were asked directly whether one or more of their private current accounts had been blocked for use by the bank.

accounts also makes it very difficult for individuals to get help from the welfare system, especially during the COVID-19 period, when the government deployed a safety net of grants, unemployment benefits, and subsistence benefits for the self-employed.

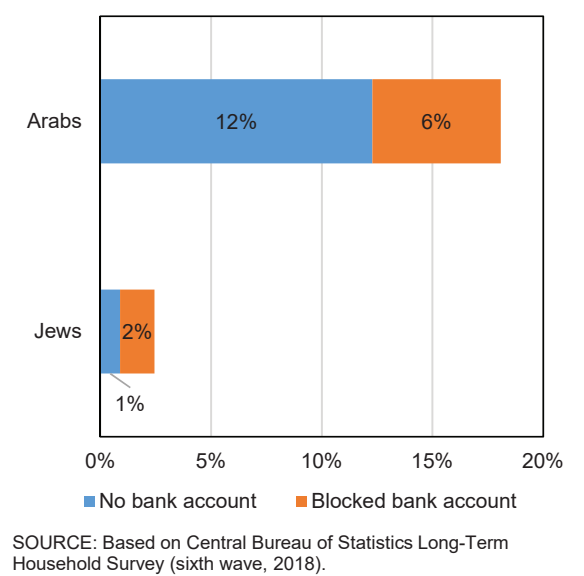
In 2018, similar rates of Jews and Arabs indicated overdrafts from the bank (42 percent and 44 percent, respectively), but among the Arab individuals who stated that they have an overdraft, the phenomenon of “chronic overdrafts” is very common. Sixty-eight percent report that they have been in overdraft for a year or more, compared with 46 percent of Jews, meaning that a severe liquidity crisis prevailed in the Arab sector even before the COVID-19 crisis, which intensified the vulnerability of Arab families when the crisis broke out.

b. Economic damage from the COVID-19 crisis in the Arab sector

Due to the aforementioned difficulties of the Arab sector, the economic impact it absorbed during the crisis was stronger than in the Jewish sector, in addition to its high morbidity from the virus (see Box 7.1). Findings from the Civil Resilience Survey show that about 54 percent of Arabs reported a deterioration of their economic situation during the year, compared with 42 percent of the Jews (Figure 7.15). Another notable finding is that the rate of Arabs reporting very high economic deterioration is 17 percent, almost three times the corresponding rate among Jews. Table 7.5 (Columns 1–4) shows that when the characteristics of the individual are taken into account (age, gender, children in the home, education, and employment) the gap between the groups in the economic damage from the COVID-19 crisis is reduced by half, although it remains large and significant. This means that the excess economic damage in the Arab sector compared to the Jewish sector is not due only to their observed characteristics.³⁴ Moreover, the table shows that there was excess economic

³⁴ However, there may be characteristics that are not observed in the survey but are correlated with the individual being an Arab and also with the excessive economic damage from the COVID-19 crisis—for example, the level of income in the period prior to the crisis.

Figure 7.14
Rate of Households Without a Bank Account or With a Blocked Account



The rate of Arab individuals who reported being economically affected by the COVID-19 crisis, as well as the rate of Arabs who reported reducing food consumption, were higher than the corresponding rates in the Jewish sector.

damage to the Arab population, above and beyond the effect related to characteristics of the individual, in the following groups: men, age 44+, lacking academic education, households with children, and working employees.

An indication of consumption smoothing difficulties in the Arab sector is that many report difficulties in maintaining their food consumption at the level they maintained before the crisis. About a quarter (26 percent) of the Arab individuals in all periods of the sample reported that they reduced their quantity of food and meals, compared with only 14 percent among Jews, and this gap remained relatively stable over time (Figure 7.16). In addition, Table 7.5 (Columns 5–8) shows that most of the gap (3/4) is not explained by the observable characteristics of the individuals in the sample. This impact is noticeable among young people and adults alike, and is particularly strong among individuals with children in the household and among individuals who do not have an academic education. In the Jewish sector, the rate of those reporting a reduction in food consumption due to the COVID-19 crisis is lower (14 percent), and their rates are relatively similar in most of the groups in the Jewish population. COVID-19 actually exacerbated the food insecurity that existed in the Arab sector even before the crisis.³⁵ Liquidity difficulties and consumption smoothing in the Arab sector are consistent with findings from the Israel Democracy Institute's July 2020 survey, which showed that after the outbreak of the COVID-19 crisis, the rate of Arabs who reported that they had no liquid funds (46 percent) was double the rate among non-*Haredi* Jews (23 percent).³⁶

The impact of the economic crisis on the Arab sector is not limited to those who have lost their jobs. Many who continued to work were also affected.

Table 7.5 also shows differences in the impact of the COVID-19 crisis between Jews and Arabs according to different subgroups in the population. The table also shows that the rate of those reporting a deterioration of their economic situation in the Arab sector is significant among the employed as well (46 percent), and not only among the unemployed.³⁷ Moreover, the rates of nutritional harm in both groups are almost identical. This shows that the impact of the crisis on the Arab sector is not limited to those who have lost their jobs. Many who continued to work were also affected.

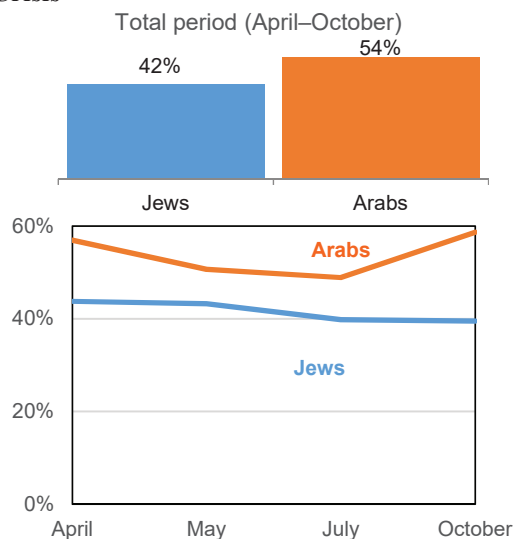
Evidence of the COVID-19 crisis's impact on Arab employees who did not lose their jobs but reduced their employment can be seen in a survey conducted among persistent employees (individuals who worked in all months in which they were sampled in 2019 and 2020) in Labor Force Surveys. The analysis shows that while the persistent Jewish employees worked from March to December almost as much as in the corresponding period last year, among the Arabs the number of weekly

³⁵ For example, a survey by the National Insurance Institute found that almost half of the families in the Arab sector suffered from food insecurity in 2016. M. Endblad, A. Heller, N. Berkeley, and D. Gottlieb, "Food Security Survey 2016: Main Socioeconomic Findings". Jerusalem: The National Insurance Institute (in Hebrew).

³⁶ D. Aviram-Nitzan and Y. Keidar (2020). "survey of the state of the Public in the Labor Market in the COVID-19 Period". Jerusalem: The Israel Democracy Institute.

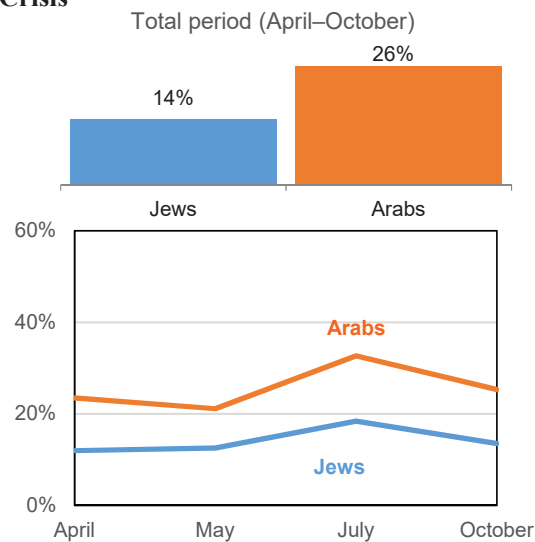
³⁷ The survey cannot consistently distinguish between unemployed people who lost their jobs due to the COVID-19 crisis and individuals who were previously unemployed.

Figure 7.15
Rate of Those Reporting a Deterioration in their Financial State Due to the COVID-19 Crisis



SOURCE: Based on Central Bureau of Statistics Civil Resilience Survey (waves 1–4).

Figure 7.16
Rate of Those Reporting that they Reduced Food Consumption Due to the COVID-19 Crisis



SOURCE: Based on Central Bureau of Statistics Civil Resilience Survey (waves 1–4).

working hours in these months decreased by 5 percent (Figure 7.17).³⁸ Wage cuts were also probably more prevalent among Arab workers. In a survey conducted by the Israel Democracy Institute in August 2020, 43 percent of Arab employees reported a reduction in their wages, compared with 33 percent of Jewish employees. Among the individuals whose wages were affected, the average rate of the effect among Arabs was about 33 percent, compared with 24 percent among Jews.³⁹

c. COVID-19's impact on the well-being of students in the Arab sector

The Arab sector was particularly hard hit by the shutdown of schools (which was reviewed in general in Part B of the chapter) due to its limited access to distance learning. According to a Bank of Israel policy paper (2020), based on a household expenditure survey in the period before the crisis, only 30 percent of Arab households

³⁸ It should be noted that the sharp decline in work hours observed in October 2019 was due to the Jewish New Year holidays. In the corresponding period in 2020, no similar decline was observed due to COVID-19 restrictions on movement and leisure.

³⁹ Aviram-Nitzan and Keidar (2020). See footnote 36.

Table 7.5
Differences between Jewish and Arab Israelis in how the COVID-19 pandemic affected their financial state and food consumption, by segment

	Rate of those reporting a deterioration of their financial state (%)				Rate of those reporting a decline in food consumption (%)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Jewish	Arab	Gross gap ^a	Net gap ^b	Jewish	Arab	Gross gap ^a	Net gap ^b
Total	41.6	53.8	12.2**	6.2**	14.1	25.7	11.6**	8.6**
Aged 25–44	47.3	53.5	6.2**	2.2	13.8	26.1	12.3**	8.9**
Aged 44+	36.3	54.2	18.0**	12.2**	14.4	25.0	10.6**	7.8**
Men	42.3	59.2	16.9**	10.5**	13.3	27.4	14.0**	10.8**
Women	40.9	48.6	7.7**	0.9	14.8	24.0	9.2**	6.4**
With children at home	45.3	56.6	11.3**	6.7**	13.8	27.1	14.0**	10.8**
No children at home	37.0	47.8	10.8**	1.9	14.4	22.1	7.7**	3.4
Academic education	36.1	50.1	14.0**	5.4	9.2	13.2	4	0.2
No academic education	43.8	54.3	10.5**	5.8*	16.1	27.4	11.3**	10.1**
Employed (salaried only) ^c	36.7	46.0	9.2**	7.8**	12.5	23.0	10.6**	9.1**
Unemployed ^d	48.5	57.6	9.0**	3.3	15.4	25.0	9.5**	8.3**

** Statistically significant at a 5 percent level; * Statistically significant at a 10 percent level.

^a The gross gap is not necessarily the same as the difference between the "Jewish" and "Arab" columns of the table due to rounding to the first decimal.

^b The net gap is the difference between the groups after taking the following individual traits into consideration (through a regression): Age group, gender, children at home, and the individual's academic education and employment.

^c The number of self-employed Arabs in the survey is very low, and was therefore omitted from this calculation.

^d We cannot consistently and reliably distinguish between individuals who lost their jobs due to the COVID-19 crisis and those who were unemployed beforehand.

SOURCE: Based on Central Bureau of Statistics Civil Resilience Survey (waves 1–4).

had ready access to infrastructure that would enable distance learning, compared with 75 percent in the non-*Haredi* Jewish population (Fig. 7.18).⁴⁰

A survey of parents by the National Authority for Measurement and Evaluation in Education (RAMA) found that in the 2019-20 school year, 41 percent of parents in the Arab school system reported that their children did not regularly participate in distance learning, and 15 percent reported that their children's classes did not at all include distance learning.⁴¹ Furthermore, according to assessments of the Arab Education Monitoring Committee, even during periods when physical education was

Arabs' studies in the education system and in academia have been severely affected, due to limited access to infrastructure and to the means that enable distance learning.

⁴⁰ Bank of Israel (2020). "Readiness for Distance Learning at the Student and School Level: Insights from PISA 2018 and the Household Expenditure Survey" (in Hebrew). The Bedouin population in the unrecognized villages in the Negev was not sampled in the expenditure survey, but its situation is particularly serious, as many of the villages are not even connected to the national electricity infrastructure.

⁴¹ Ministry of Education, RAMA (2020). "Teaching and Distance Learning: Lessons from the Lockdown Period due to the COVID-19 Pandemic, Parent Survey" (in Hebrew). students who did not participate regularly are students who did not attend half or more of the classes or did not have distance learning in their classes at all.

Figure 7.17
Average Number of Weekly Work Hours Among Persistent Workers^a, 2020 Compared with 2019

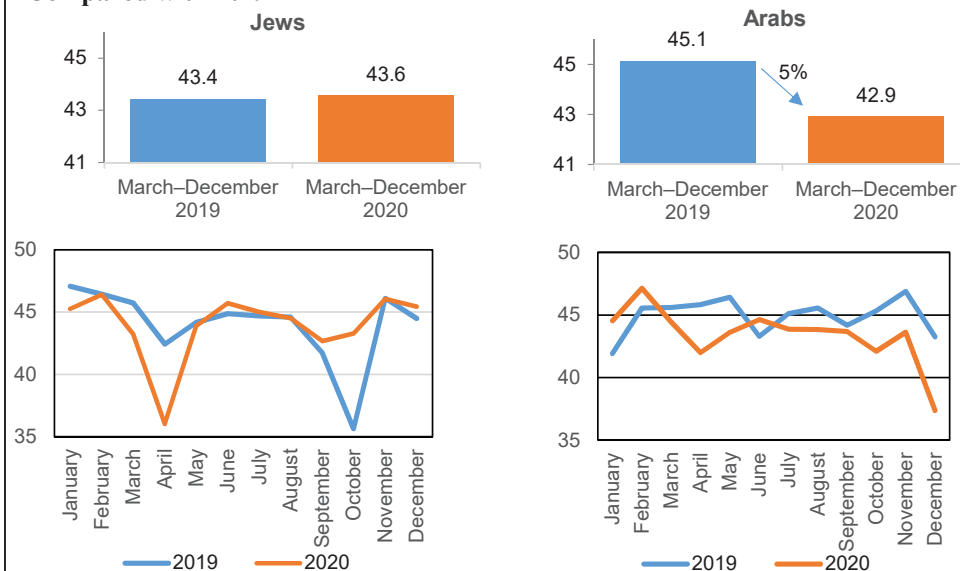
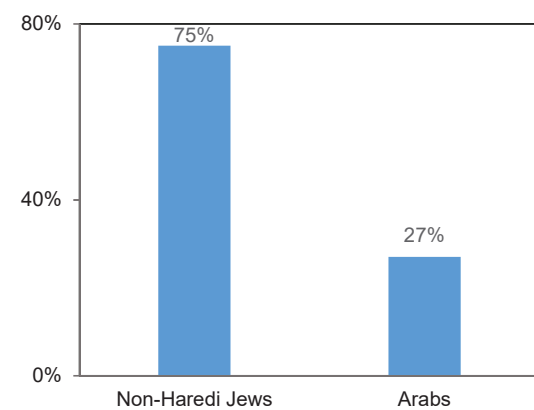


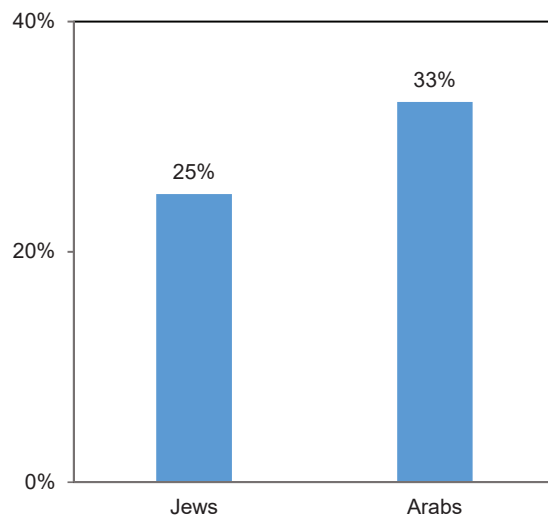
Figure 7.18
Rate of Households with A High Rate of Accessibility to Distance Learning Infrastructure^a



^a Fewer than 1.3 people per room, Internet connection, and less than three school-aged children per computer.

SOURCE: Based on Central Bureau of Statistics Household Expenditure Survey (2018); Bank of Israel (2020), "Preparedness for Distance Learning at the Student and School Levels—Insights from PISA 2018 and the Household Expenditure Survey".

Figure 7.19
Rate of Those Reporting A Deterioration in Their Children's Emotional State



SOURCE: Based on Central Bureau of Statistics Civil Resilience Survey (waves 1–4).

officially conducted in some classrooms (in May and June), 85 percent of children did not return to school because difficult physical conditions at the school did not enable compliance with the Ministry of Health directives.⁴² The findings of the Central Bureau of Statistics' Civil Resilience Survey indicate a significant impact on the emotional state of children and youth in the Arab sector during the crisis. Thirty-three percent of Arabs report a deterioration in the emotional state of their children, compared with 23 percent of Jews (Figure 7.19). The severe impact on continuous studies in the Arab sector may affect the long-term success of children and intensify inequality in academic achievement, which already exists today between the groups.⁴³

Arab students in institutions of higher education were also affected. A special survey conducted by the Aharon Institute found that the rate of Arab participation in classes dropped dramatically after the start of the COVID-19 crisis—from 74% to 48%, exceeding the corresponding change among Jews (Figure 7.20).⁴⁴ This survey also found that among 35 percent of Arabs, the Internet infrastructure in their place of residence does not allow them to maintain a normal study routine, compared with 12 percent of Jewish students. In addition, while 83 percent of Jewish students connect to online classes using a personal computer, only 31 percent of Arab students have such a computer, while the rest are forced to use a cell phone, family computer, or other methods to meet their academic needs.

The impact of the COVID-19 crisis on the Arab education system and on Arab students comes in the context of the large gaps that have long existed between the sectors. However, in the last decade certain positive trends have also been observed. For example, the gap in grades between Jews and Arabs narrowed significantly between 2008 and 2017 both in the Meitzav tests and in the TIMSS tests⁴⁵, and the rate of eligibility for a matriculation certificate in the Arab sector increased between 2000 and 2015 from 29 to 50 percent in relevant age cohorts. In addition, the number of Arab students more than doubled during the decade from 2008 to 2018, and the rate of new students increased in those years from 21 to 25 percent of the school-age cohorts.⁴⁶ It is important to take the necessary steps so that the damage during the crisis does not translate into continuous impairment of academic achievement, which will draw the system back from the improvement recorded previously.

⁴² The Arab Education Monitoring Committee (2020). "Arab Education in Israel: Needs and Problems that Require Immediate Treatment in Preparation for the Opening of the 2020-21 School Year" (in Hebrew).

⁴³ See, for example: N. Blass (2020), "Achievements and Gaps in the Israeli Education System: Situation Report", Policy Paper 01.2020. Jerusalem: Taub Center for the study of Social Policy in Israel.

⁴⁴ M. Tahaoko, N.H. Haj-Yihya, and H. Matar (2021). "The Gaps between Jewish and Arab students in the COVID-19 Period", Special Policy Paper, Aharon Institute for Economic Policy (in Hebrew).

⁴⁵ N. Blass (2020). See footnote 43. An exception to the general trend is a surprising and noticeable decline in the PISA scores of Arab students in 2018, a phenomenon that has not yet been studied in depth.

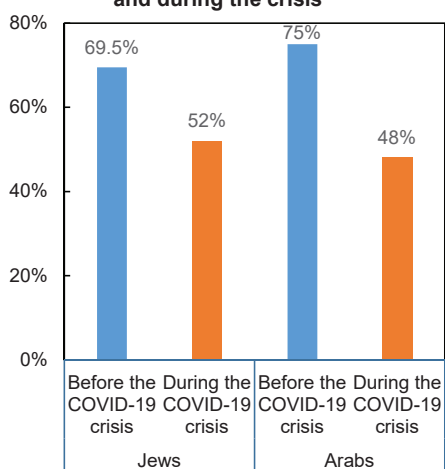
⁴⁶ The Council for Higher Education (2018). "Making Higher Education Accessible to Arab society"; Z. Krill and N. Amaria (2019). "Barriers to the Integration of the Arab Population in the Higher Education System", Chief Economist Division, Ministry of Finance. It should be noted that previously, in the first decade of the 2000s, the rate of higher education among Jews increased much more than among Arabs, and the gaps widened.

As part of the implementation of the lessons of the crisis, a significant increase in government investment in ICT and computer equipment is necessary in order to give every child access to computers and the Internet, and extensive investment is needed in improving Internet infrastructure in Arab localities. This investment is also essential for the future, when returning to in-person studies, as it will increase the

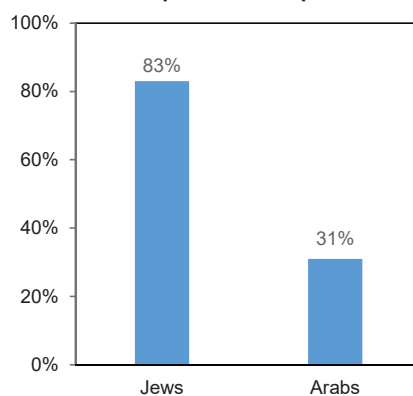
Figure 7.20

Adverse Impact to Arab Students During the COVID-19 Crisis

a. Rate of class participation at institutions of higher education, before and during the crisis



b. Rate of connection to online classes via personal computer^a



^a As opposed to a mobile phone or a computer belonging to family or friends.

SOURCE: Aharon Institute survey of students, June 2020; M. Tahaoko, N.H. Haj-Yihya, and H. Matar (2021). "The Gaps between Jewish and Arab Students in the COVID-19 Period", Special Policy Paper, Aharon Institute for Economic Policy (in Hebrew).

ability to use digital and online content in schools and institutions of higher education in the coming years. It is also important to implement a follow-up and assistance program for students who were harmed during the crisis as soon as possible in the education system in general, and in the Arab sector in particular, where many students seem to have been harmed. Action must also be taken to catch up with the academic backlog and fill the educational gaps that have developed among Arab students during the crisis.

Box 7.1

THE SOCIOECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF COVID-19 PATIENTS

- Until the end of January 2021, the incidence of COVID-19 morbidity (infections, hospitalizations, and deaths) in the *Haredi* (ultra-Orthodox Jewish), Arab, and Druze sectors was higher than among non-*Haredi* Jews.
- In addition, the probability within the sectors of being hospitalized was three times higher after taking into account the socioeconomic and demographic characteristics of the people. Accordingly, morbidity was also influenced by behavioral factors.
- The opening of schools seemingly contributed to an increase of about 4 percent in the probability of students being infected with COVID-19, and the probability increased with age.
- In households in which a person has already been infected, about one-third to one-quarter of the other persons were infected. The infection rate in these households is much higher than the average in the population, which was about 7 percent.
- In an international comparison, the death rate from COVID-19 in Israel until mid-February 2021 was above the middle of the rates in OECD countries (not including those in Eastern Europe, Central America, and South America).

The COVID-19 pandemic spread to Israel in late February 2020 and has since risen and fallen—in line with the social distancing measures taken and compliance with them, mutations of the virus and their effects on its spread and danger, the progress of the vaccination campaign that began at the end of the year, and other factors. The prevalence of morbidity in Israel (and in the world) varies according to socioeconomic and demographic characteristics, which will be briefly discussed in this box. The analysis is based on the pairing of the Ministry of Health's COVID-19 infected patient files, until the end of January 2021, with administrative sources of information and Central Bureau of Statistics Labor Force Surveys.¹ Since the number of infected patients does not reflect the full picture because it partly depends on the number of COVID-19 tests², we also used data on hospitalized patients and deaths, which better reflect the extent and severity of the morbidity.³ During the period reviewed, until the end of January 2021, there were about 646,000 COVID-19 patients diagnosed in Israel, and about 30,000 of them were hospitalized. There were about 4,700 COVID-19 deaths, and the excess mortality between March and December 2020 (compared to the mortality in the corresponding periods in 2017–2019) reached about 10 percent (Weinreb, 2021).⁴

The COVID-19 mortality rate in Israel was above the middle of the rates in 25 OECD countries (not including those in Eastern Europe, Central America, and South America—see footnote 1 to Figure 1),

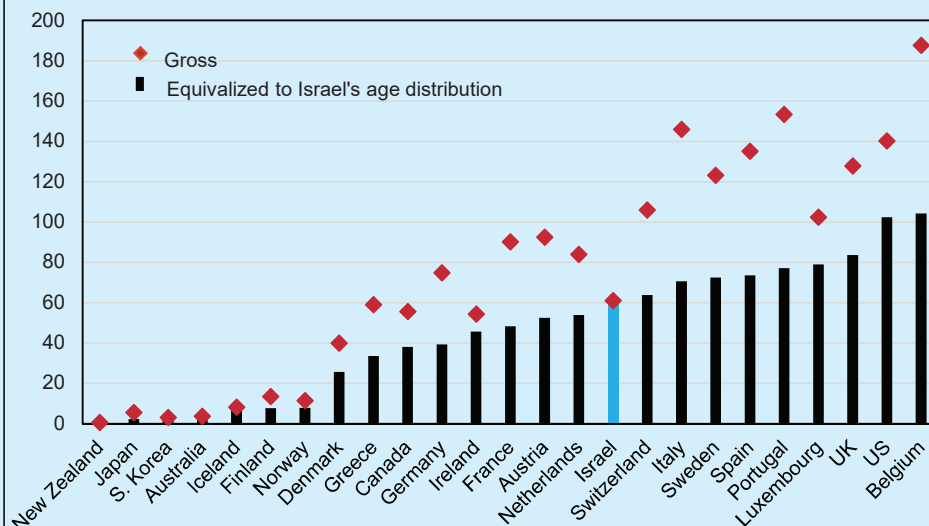
¹ A similar analysis, although aggregated at the statistical areas (neighborhoods) level, appears in the report of the Advisory Committee to the National Security Council, October 2020. We thank the Central Bureau of Statistics staff for preparing the data and providing them to the Research Department.

² There were no data obtained from the Ministry of Health for people who tested negative for COVID-19.

³ Some of the patients were in home care or in COVID-19 hotels, and we have no information about them. Mortality also depends on the patient's previous medical condition and the quality of medical treatment.

⁴ See also: Central Bureau of Statistics (2020) and Haklai et al. (2021).

Figure 1
**Number of COVID-19 Deaths per 100,000 Residents in OECD Countries^a,
 Gross and Equivalized to Israel's Age Distribution^b**
 (deaths until mid-February 2021^c)



^a The OECD countries listed do not include Turkey, eastern European countries (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia), or those in central and South America (Chile, Colombia, and Mexico). Those countries were not included in the comparison due to the lack of available data on COVID-19-related mortality by age group and/or the unreliability of data on deaths. Data on the UK include Wales but not Scotland.

^b In each country, the number of deaths per 100,000 residents was calculated for each age group, multiplied by that age group's share of total Israeli residents. For the vast majority of countries (including Israel), the age distribution of the population is as of 2019, while for the others it is as of 2018.

^c For the vast majority of the countries, the data are as of February 10-18, 2021, and for others they are as of a later date (up to February 23, 2021 at the latest) or an earlier date in February. The data for Israel are as of February 18, 2021.

SOURCE: COVID-19 deaths: Israel—Ministry of Health; Other countries—Ministries of Health, government research institutes in the field of health, and statistics bureaus. (Some of the data are provided on the National Institute for Demographic Studies (INED) at <https://dc-covid.site.ined.fr/en/data>.) Age distributions: Israel—Central Bureau of Statistics; Other countries—United Nations (<http://data.un.org/Data.aspx?d=POP&f=tableCode%3A22>).

taking into account that the population in Israel is relatively young and COVID-19 mortality around the world and in Israel is concentrated in older age groups (Figure 1). More than three-quarters of those who died in Israel were aged 70 and over. Among those aged 70–79, the mortality rate in Israel was in the top third of the comparison countries, and among those aged 80 and over, the rate in Israel was above the middle of the ranking.

Several milestones can be noted in the spread of the virus in Israel (Figure 2). Morbidity increased in March, leading to a first lockdown. It subsided in late April and social distancing restrictions were eased. From June the morbidity rose steadily until mid-september, when a second month-long lockdown was imposed. In December, the rapid vaccination campaign began at the same time as morbidity rose to unprecedented rates, in part due to the infiltration of more infectious mutations of the virus into Israel, which led to a third lockdown that was imposed at the end of the month. That lockdown was tightened a week later for about a month, and a gradual exit from it began on February 7, 2021.

Figure 3a shows that the number of COVID-19 tests per capita among young people up to the age of 29 was relatively low, although the positive rate was high. In older adults the rates of testing and of positive results declined moderately with the age. Many tests were performed on people aged 80 and over, and the rate of positive results among them was relatively low. This is partly due to the “Magen Avot v’Imahot” (“Fathers and Mothers Shield”) program, which monitored the morbidity of residents in nursing homes and other institutions and took vigorous steps to prevent outbreaks of the pandemic among them. This caused their morbidity to drop from the third quarter of 2020 onwards. Figure 3B shows that the number of COVID-19 tests per capita in the *Haredi* sector and in the non-*Haredi* Jewish sector were similar, and the number was much lower among the Arabs and Druze. This is despite the fact that the verified infection rates among the *Haredi* and Arabs as a share of the general population were relatively high, as were positive testing rates among those tested.

The rates of those infected and hospitalized (as a share of the entire population and not only among those infected) by age and population groups are presented in Figure 4. Within each age group they are usually in the following descending order: *Haredim*⁵ or Arabs, Druze and non-*Haredi* Jews. Infection rates were relatively high among *Haredim* aged 15–17, and the high rates among Arab and Druze adults are notable. A similar picture emerges from the data on those hospitalized. Hospitalization rates rise sharply from the sixth decade of life. Since morbidity rates are age-dependent, and the Arab and, especially, *Haredi* populations are relatively young, the infection, hospitalization, and death rates from COVID-19 presented in the second panel of Figure 4 are as they would have been in each population group had its age distribution been the same as that of non-*Haredi* Jews. The very high infection rates among *Haredim*, and to a lesser extent Arabs and Druze, are notable. The relative hospitalization and death rates are particularly high among Arabs: While the infection rate of Arabs is high, only 2.4 times higher than that of non-*Haredi* Jews, due to the low incidence of COVID-19 tests among the former (Figure 3b below), the hospitalization and death rates among them are about 6 times higher than among non-*Haredi* Jews. In total, about 47 percent of the hospitalized and about 29 percent of the deceased were *Haredim*, Arabs and Druze, while they account for less than 10 percent of the population aged 65 and over.

Based on Labor Force Surveys for the years 2018–2020—which constitute a representative sample of the population aged 15 and over—Figure 5a presents an estimation of the probability of those belonging to the various population groups being infected compared to the probability of non-*Haredi* Jews. In each estimate, more socioeconomic and demographic characteristics of the individuals are added to the control variables. The probability of *Haredim* being infected is 6.2 times higher than those of non-*Haredi* Jews before taking into account the characteristics (bottom black column in Figure 5a). When age and gender are taken into account, the relative chance of *Haredim* being infected decreases to 5.7 times higher, since many of the *Haredim* are young, and in that age group the infection rate is high as stated. When the number of children and residential density in the household are also controlled, as well as the density in the residential neighborhood, the relative probability decreases slightly, a finding that may indicate

⁵ The *Haredim* are those who are classified as such in the Central Bureau of Statistics Religious Register, which relies partly on the educational institutions in which the individual or his relatives studied (for example, a large *yeshiva*). In the estimates whose results will be presented below, based on Labor Force Surveys, *Haredim* are as self-defined by those surveyed.

Figure 2
Number of COVID-19 Infect, Hospitalized, Patients in Serious Condition, and Deaths per Week^a

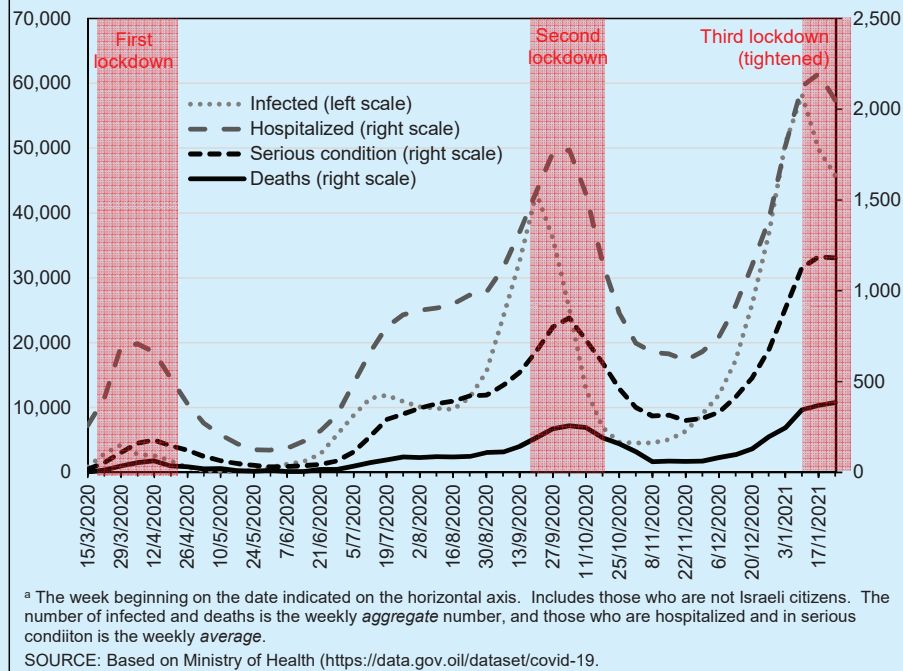
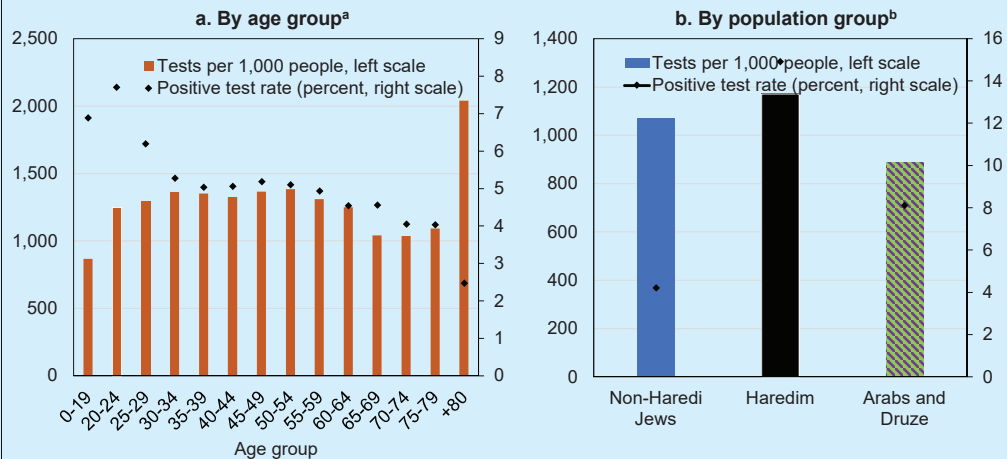


Figure 3
Number of Cumulative COVID-19 Tests per 1,000 Persons and Rate of Positive Tests

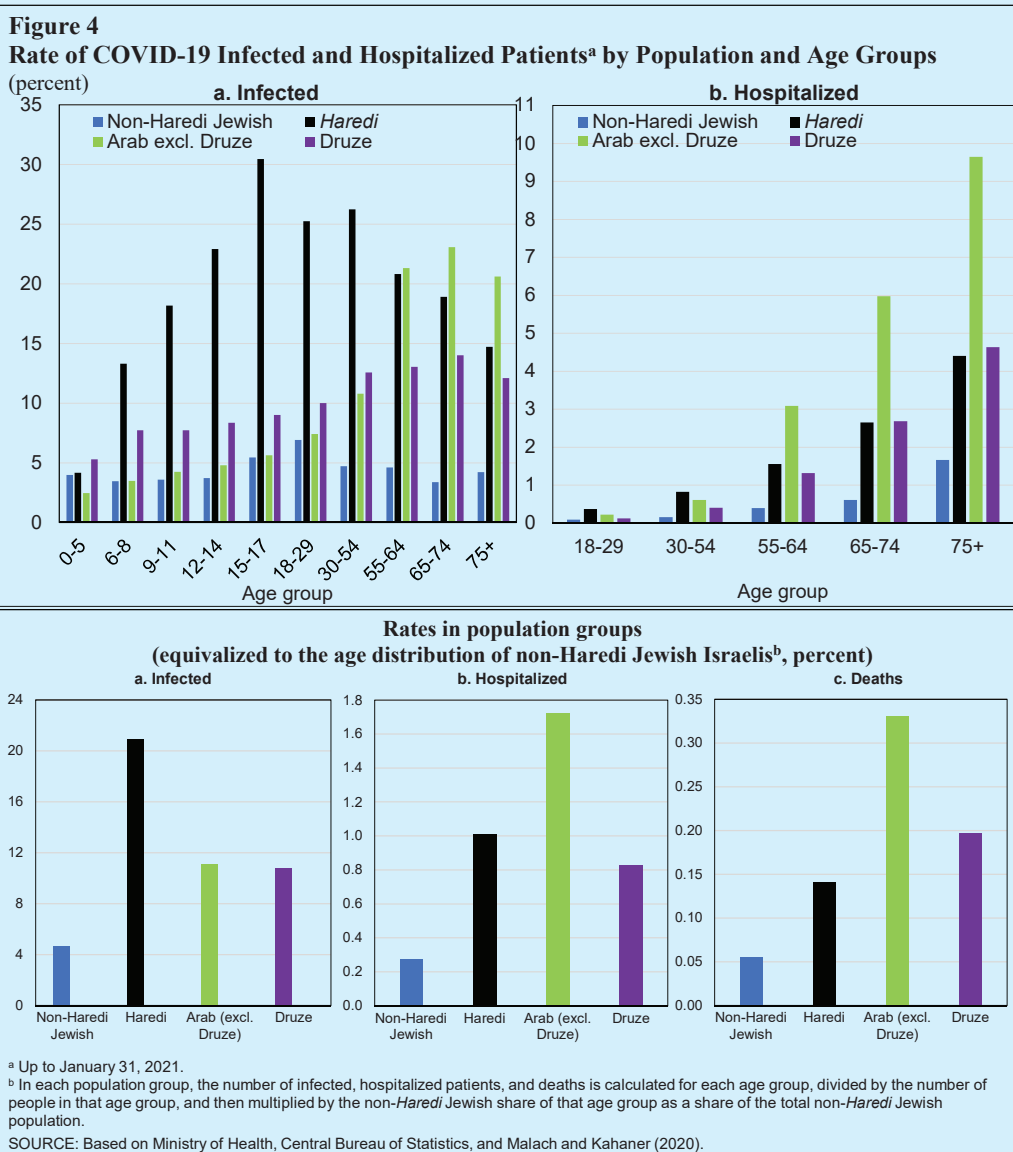


^a Up to January 1, 2021.

^b Municipalities and local councils only. Data up to January 14, 2021.

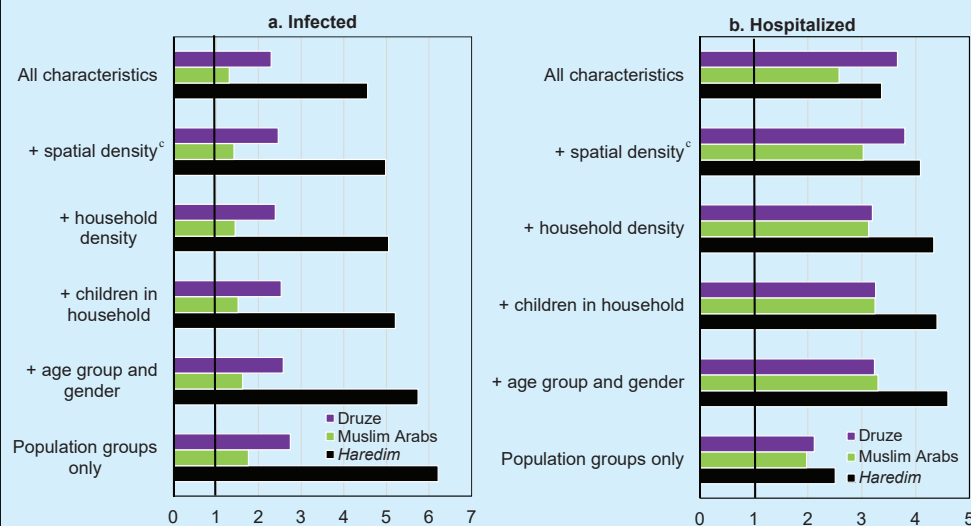
The analysis is at the statistical area (neighborhood) level. *Haredi* statistical area—*Haredi* homogeneity level of 6 or lower based on voting rates for the United Torah Judaism and Shas political parties (see Gurovich and Cohen-Kastro (2004)). Arab statistical area—Most residents are Muslim or Christian Arabs or Druze. Population data as of the end of 2017.

SOURCE: Based on Ministry of Health—Statistical area COVID-19 data groups and age and gender COVID-19 data (<https://data.gov.il/dataset/covid-19>), Gurovich and Cohen-Kastro (2004), and Central Bureau of Statistics.



that having many children in families and living in crowded apartments and neighborhoods contributes almost no morbidity (see also below). After taking into account other characteristics (size of the locality, the district of residence, marital status, level of education, and family income from labor [in 2018]) the probability of *Haredim* being infected with COVID-19 is 4.6 times higher than that of non-Haredi Jews—a finding that indicates that behavioral factors probably contributed to the high rates of those infected among them. Muslim Arabs were 1.8 times more likely than non-Haredi Jews to be infected, before considering personal characteristics, and Druze – 2.7 times more likely. These gaps are reduced to 1.3 and 2.3 times, respectively, after taking the characteristics into account.

Figure 5
The Effect of Belonging to a Population Group on the Probability of Being Infected or Hospitalized^a Compared to the Probability of a Non-Haredi Jewish Israeli, Before and After Controlling for Socioeconomic and Demographic Characteristics^b



^a Up to January 31, 2021. Israeli citizens aged 15 and over.

^b Based on logit estimates of the probability of being infected/hospitalized for COVID-19, as dependent on some/all of the following explanatory variables (characteristics): population group, man, age group, number of children in each age group, household density (persons per room), spatial density (number of persons per square kilometer in the statistical area of the residence [neighborhood] divided into tertiary groups), size of locality (rural, urban [in thousands of residents]: up to 50, 50–100, over 100), residential district, married, dummy for years of schooling (not including yeshiva) over 12, and decile of family labor income as an employee or self-employed (in 2018, the base group is the unemployed). The figures present the odd ratio. All the estimates of population groups are significant at a level of 1 percent.

^c Number of persons per square kilometer in the statistical area of residence (the neighborhood).

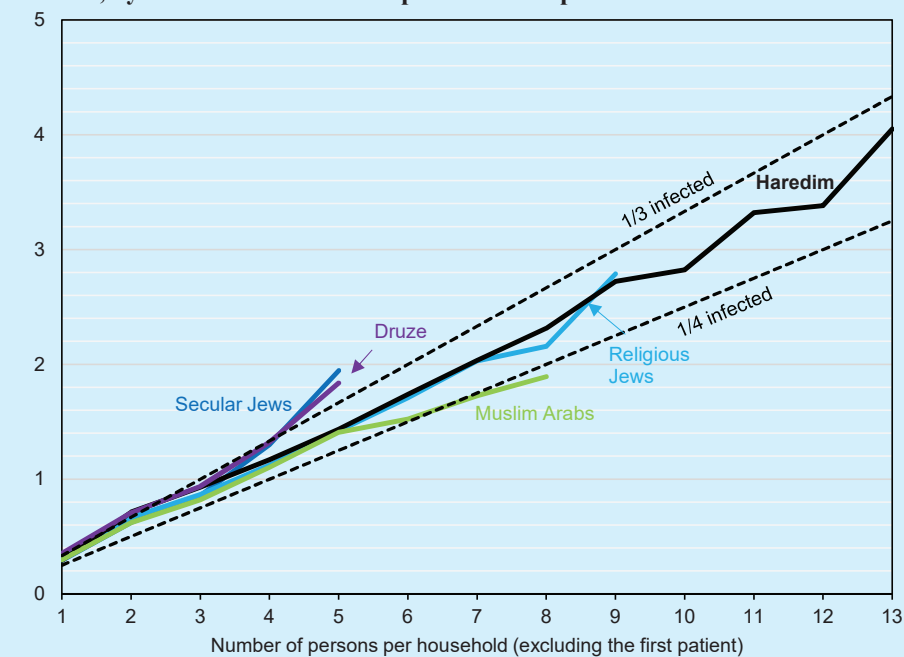
Source: Based on Ministry of Health and Central Bureau of Statistics.

The relative probability of those belonging to the various population groups being hospitalized due to COVID-19 infection—a measure that reflects the incidence of morbidity better than the probability of getting a positive test result—is presented in Figure 5B. It is clear that the number of children in the household and the household density had relatively little effect on hospitalization until the end of January 2021, similar to the findings regarding positive test results. After taking personal characteristics into consideration, *Haredim*, Muslim Arabs, and Druze were three times more likely to be hospitalized than non-*Haredi* Jews. The estimate also shows that the probability of the highly educated (13+ years of education, not including in a large *yeshiva*) of being hospitalized was one-third lower than the others, and that is after the other characteristics are controlled. It should be noted that similar results of the probability of being infected and hospitalized were obtained for the period up to the beginning of the vaccination campaign in December.

A significant proportion of COVID-19 infections occurred within households: In half of the households with 2 or more persons that had someone who was infected, there was at least one more person infected. Figure 6 presents the average infection numbers in households in which there is at least one infected person, according to the size of the household and the population group. Each additional person in the household was correlated with another 1/3 to 1/4 infected person. This runs contrary to the hypothesis that

the rate of infection increases with larger households.⁶ It should be emphasized that the infection rates in these households are much higher than the average rate in the population, which was about 7 percent until the end of January 2021.

Figure 6
Average Number of COVID-19 Patients in a Household with at Least One Patient^a, by Household Size and Population Group^b



^a Not including the first infected patient. Identification of the second patient is up to two weeks after the first patient and the same for the following patients relative to those preceding them. A household is included in the calculation only at the first infection. An administrative household includes married spouses and children up to the age of 21 (as long as they are not married). Some of these family members may have not actually lived in the administrative household, or additional persons may have lived in the household who are not the above family members. Trimming 5% of the bottom and top values of the number of infected persons in the household has almost no effect on the average number of infections.

^b In nonreligious Jewish households, the number of patients rises rapidly when the number of persons (not including the first patient) increases beyond 5. These households are not common, and usually have relatively low socioeconomic characteristics.

Source: Ministry of Health, Central Bureau of Statistics and Bank of Israel processing.

⁶ The difference in the average infection rates in the household between the population groups also depends on the rate of those tested for COVID-19.

COVID-19 IN THE EDUCATION SYSTEM

One of the major issues in the management of the COVID-19 crisis was the activity of educational institutions. Their opening enables more effective learning than distance learning (see Part 2 of this chapter), reduces the impact on children's well-being, and supports parents' employment (alleviating the need for supervision of small children and enabling smooth work from home). However, the opening of educational institutions may increase morbidity.⁷

Table 1 presents the rates of infected students and teachers by grade level and education system. The rates of infected students in the *Haredi* education system are much higher than in the state and state-Religious Jewish systems as well as in the Arabic education system. In all the education systems the rate increased in the secondary education levels, and in grades 10–12 in the *Haredi* education system it reached about 30 percent of the students (more than a third of the boys and about a quarter of the girls). In the large *yeshivas* (and in the *kollels*) close to 30 percent of the students were infected, accounting for about 7 percent of all infected, although their share in the total population is less than 2 percent.

The rate of infected teachers in the *Haredi* education system is 4–5 times greater than in state Jewish education system, and the rate of infected Arab teachers is twice as high as the rate in the state Jewish education system, in both cases on a scale similar to the ratio of those infected among all people aged 30–54 (Figure 3a above). The share of infected teachers declined from primary school to middle/secondary school, despite the increase in the proportion of infected students with the increase in grade level.⁸

Figure 7 shows the rates of infected students as a share of total infected persons over time by sector and grade level. With the official opening of schools in May 2020, after the first lockdown, the rate of infected students in the state (Hebrew and Arabic) and in *Haredi* education systems as a share of total infected persons in each sector rose sharply, and after the end of the school year their rates dropped sharply, although the total number of infected persons rose steadily. Even before the opening of the 2020–21 school year the rate of infected students in the state and *Haredi* education systems among all infected persons rose notably, and this was stopped even before the closure of the education system a week later, with the imposition of the second lockdown. In November the education system again opened gradually. Even before that, the rate of infected students among all infected persons increased, and it continued to rise throughout the period the system was operating, concurrent with a steep increase in the total number of infected persons. The rate of infected students in the *Haredi* education system out of all infected persons in the sector declined even before the schools were supposed to close with the imposition of the third lockdown, whereas in the state education system this happened mainly after they closed. The picture that emerges from the Figure is therefore mixed: The increase in reported infections corresponds with the official opening of the schools, and its decrease with their closure, only in some cases.

⁷ For a review of studies from around the world that examined the relationship between school activity patterns and COVID-19 morbidity, see Goldhaber et al. (2021).

⁸ Estimates were conducted regarding the probability of being infected and hospitalized according to the socioeconomic and demographic characteristics listed in Figure 5 above, as well as by occupation. It appears that teachers were 15 percent more likely than managers (comparison group) to get infected (the teachers' test rate was probably high), but their probabilities of being hospitalized were not significantly different. Nevertheless, it should be remembered that the number of days that schools were supposed to be open according to the guidelines were limited (see Part 2 of the Chapter).

Table 1**Rate of COVID-19-infected students and teachers by grade level and sector^a**

	(percent)		
	Jewish school system		Arab school system
	State and State-Religious	<i>Haredi</i>	
Grade level		Students	
1–3	4.0	14.5	3.4
4–6	4.2	18.3	3.9
7–9	5.4	26.6	4.7
10–12	8.2	29.9	5.8
Higher <i>Yeshivot</i> ^b		28.9	
Education stage		Teachers	
Primary	8.6	29.8	13.6
Middle	3.9		11.6
Secondary and lower <i>Yeshivot</i>	5.8	29.3	12.5

^a Up to January 31, 2021. Israeli citizens only. Student data are as of the 2019-20 school year, while those of teachers also include the 2020-21 school year.

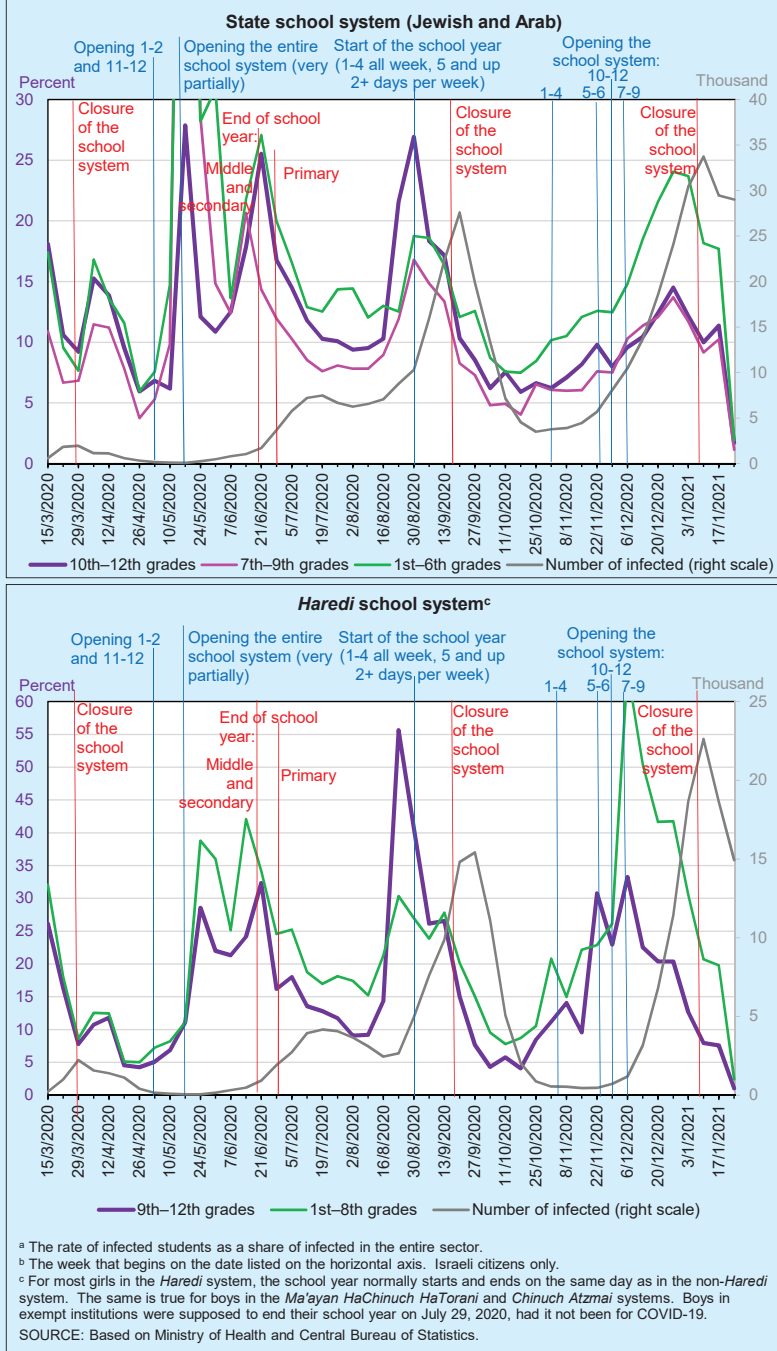
^b Including *Kollel* academies for married students.

SOURCE: Based on Ministry of Health and Central Bureau of Statistics.

Accordingly, estimations were made that examined the connection between school activity and students' probability of being infected with COVID-19. Four periods were defined around each opening and closing of the schools according to government decisions, events also marked in Figure 7 (no information is available on the actual activities of the schools): (a) two weeks before the opening; (b) the period during which the schools were open; (c) two weeks after closing (so that persons infected in the previous period can be discovered); (d) 2–4 weeks after closing schools. Estimates were made of the daily probability of a school-age child (aged 5–17 belonging to households that appeared in the Labor Force Surveys) being infected in the above periods, depending on the following factors⁹: the period, sector (state-Jewish and state-Religious [hereinafter the state-Jewish], *Haredi*, and Arab [including Druze]), age group, an infected person in the household in the two weeks preceding the date of the estimate (with the aim of controlling for infection in the household), and the daily number of infected persons aged 18 and over in the sector to which the child belongs (non-*Haredi*, *Haredi* or Arab), in order to reflect the changes in the morbidity of adults, some of which probably do not result from the opening or closing of

⁹ A child found to be infected is omitted from the estimates from the following day.

Figure 7
Infected Students as a Share of Total Infected^a, Weekly Data^b, by Sector and Grade Level



schools.¹⁰ Therefore, a student's probability of being infected when schools were supposed to be open is compared to the probability when they were closed, above and beyond his general probability of being infected.

Table 2 shows that during the period when the schools were open, the probability of being infected increased by about 2 percent (the value 1.023 in Column 1a) relative to the two weeks before the schools opened. The relative probability increased to about 7 percent two weeks after their closure, and remained higher than before the opening.¹¹ It follows, therefore, that during the period when the schools were open and up to two weeks after their closure, the relative probability of being infected increased by close to 4 percent (Column 1b).¹² Separate estimations for each sector indicate that during that period, the relative

Table 2
The chances of students being infected with COVID-19 by period, compared with their changes in the two weeks preceding the opening of the schools

Estimated period	(probability ratio)					
	Total		Jewish school system	Arab school system	Total	
	1a	1b	State	Haredi		
			2	3	4	5
Open schools (b)	***1.023					
Up to 2 weeks after their closure (c)	***1.073	***1.036	***1.052	***1.018	***1.008	***1.048
2–4 weeks after their closure (d)	***1.019	***1.019	***1.036	0.998	***0.952	***1.019
(b+c)xHaredi						***0.976
(b+c)xArab						***0.980

*** Significant at a 1 percent level.

SOURCE: Based on Ministry of Health and Central Bureau of Statistics.

¹⁰ The number of adults infected is correlated with what happens in the education system for three reasons: some of the adults were infected by students; the timing of adult COVID-19 testing is affected by the presence of infected students in their children's schools; the decision on the timing of the opening or closing of schools depends on the number of infected persons, including adults. The implicit assumption in the estimations is that a certain period of time passes from the date of the student's infection verification until he infects an adult, if any. It should be noted that in the estimations in which the control variable of the current day's number of infected persons aged 18 and over in the sector to which the child belongs was replaced by this variable the day before, estimates similar to those presented below were obtained.

¹¹ In estimations that did not include the period when the schools opened in November, it was found that during the 2–4 weeks after their closure, the estimate was not statistically significant relative to the period before the schools opened. The reason for the positive and significant estimates presented in Table 2, which also includes the above periode, may be that from December the British variant, which is highly contagious in children, spread throughout the country, and infections increased, at the same time as the beginning of the adult vaccination campaign. As a result, the connection between adult infections (one of the control variables in the estimates) and that of children has weakened.

¹² To illustrate, if in the two weeks prior to the opening of the schools there were an average of 100 infected children per day, when the schools opened and up to two weeks after their reclosure, an average of 4 infected children were added daily (assuming adult infections were stable in all periods).

probability of a student being infected increased by about 5 percent in the state-Jewish education system (Column 2), by about 2 percent in the *Haredi* education system (Column 3), and by about 1 percent in the Arab education system (Column 4). The increase in the probability of being infected in the *Haredi* and Arab education systems is about 2 percent lower than in state-Jewish education system (Column 5). It also appears from the estimations that the opening of schools led to an increase of about 4 percent in the probability of 10–14-year-olds being infected—above and beyond the increase among the 5–9-year-olds—and to a relative increase of about 6 percent among 15–17-year-olds.

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