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 asignificant 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.

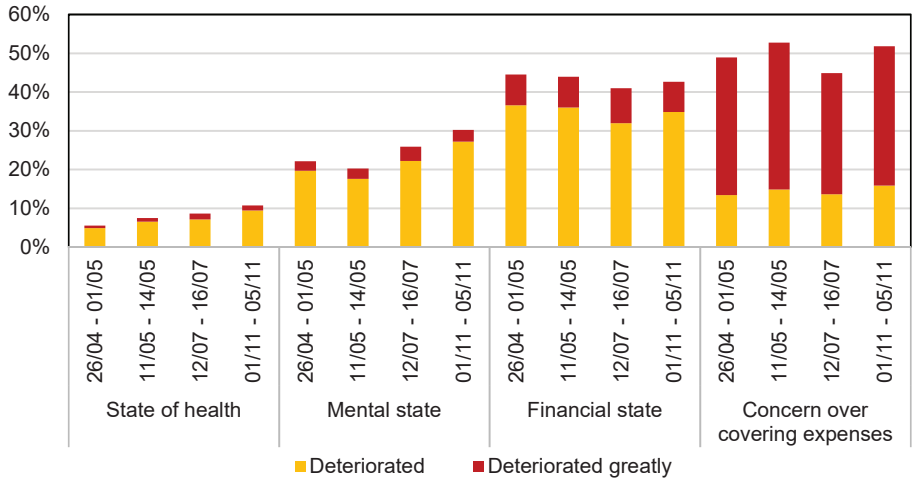
PART 1: IMPACT OF THE COVID-19 CRISIS ON HOUSEHOLD WELL-BEING – INTRODUCTION

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.

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.

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

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.

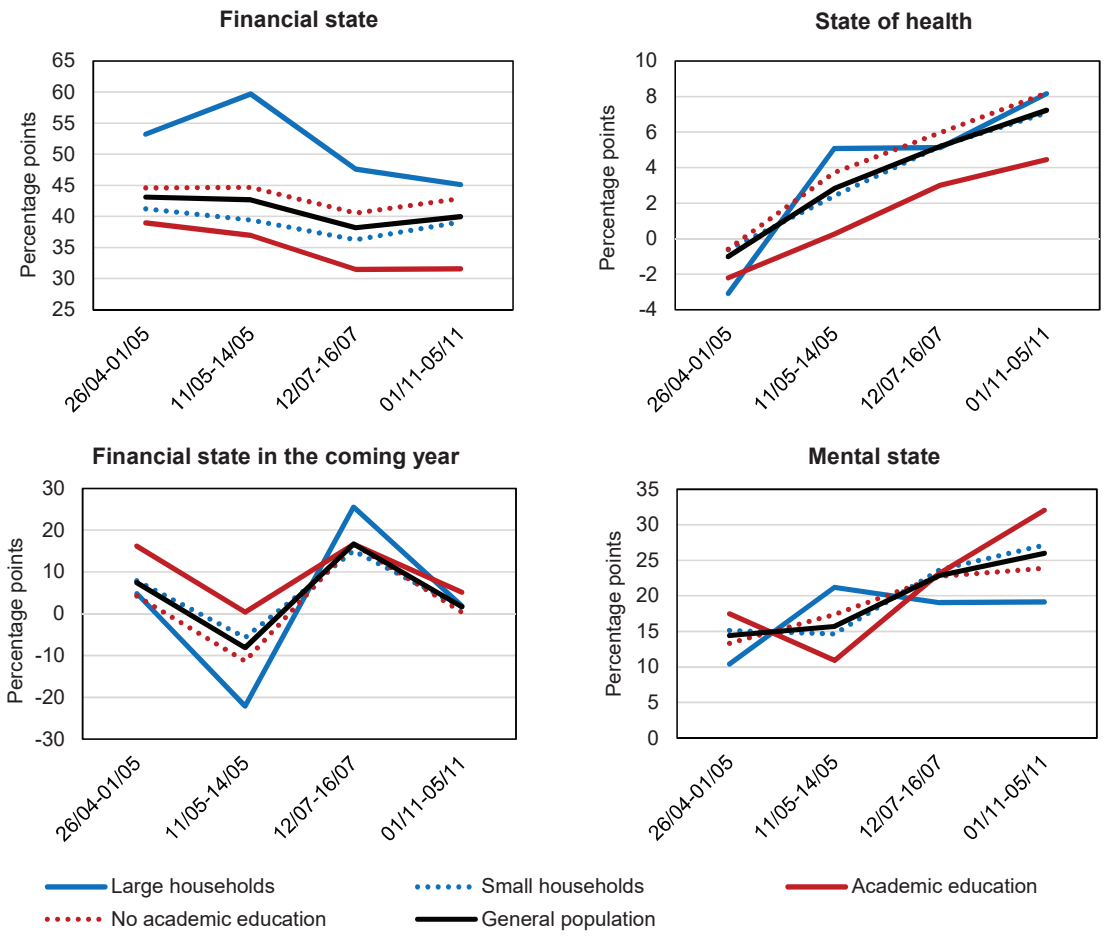
The impact on employment was significant at all income levels, but it was particularly pronounced in the middle income quintiles.

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

[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

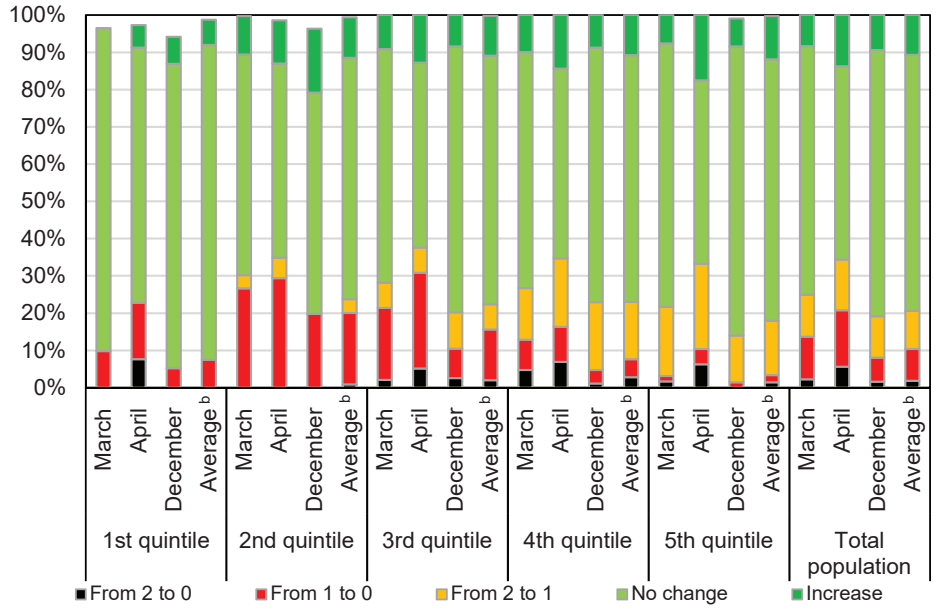


[a] The net balance is the difference between the rate of respondents whose situation has deteriorated and the rate of respondents whose situation has improved. An increase in the net balance indicates worsening, as more respondents report that their situation has deteriorated or deteriorated greatly. 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 eflects 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 days[3], 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 were[4]: 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.

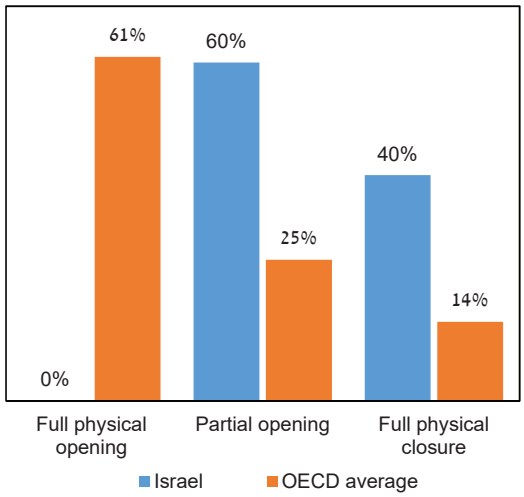
Because of the negative effects of the closure of the education system, many countries abandoned the approach of complete closure of the education system during the 2020-21 school year, and moved to a scholastic continuity approach while avoiding, as much as possible, the widespread disruption of classroom 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).

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.

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 student[5], 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

[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]

Past cases indicate that a widespread disruption of studies causes long-term damage to students' education.

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

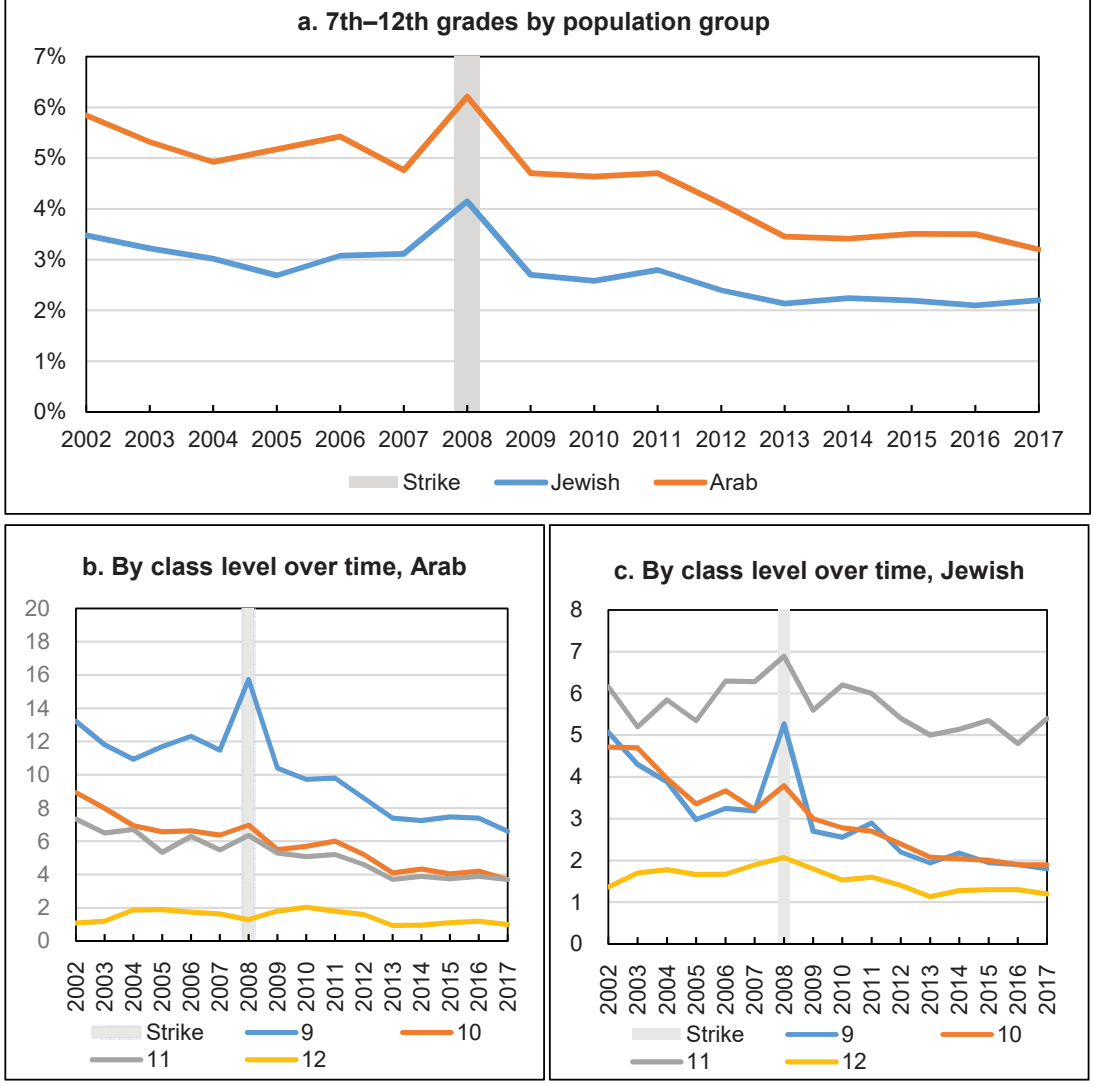
7 V. Lavy (2015). "Do Differences in Schools' Instruction Time Explain International Achievement Gaps? Evidence from Developed and Developing Countries", *Economic Journal*, 125(588): 397–424.

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", *Cliometrica*, 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



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:

$$Y_{it} = a_0 + a_1 Trend + a_2 Trend^2 + a_3 shock_t + a_4 X' + \varepsilon_{it}$$

[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).

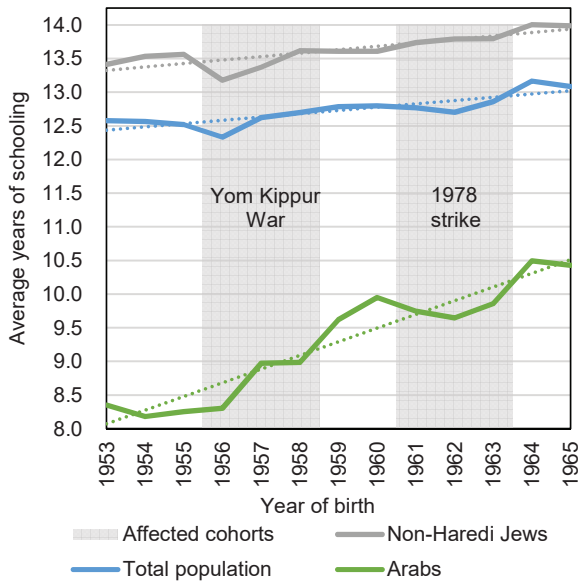
[12] Secondary School Teachers' Association (2009). *Fiftieth Anniversary of the secondary school Teachers' Association*, Yedioth Ahronoth Publishing.

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

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.

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

[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 infra structure 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.

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.

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

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).

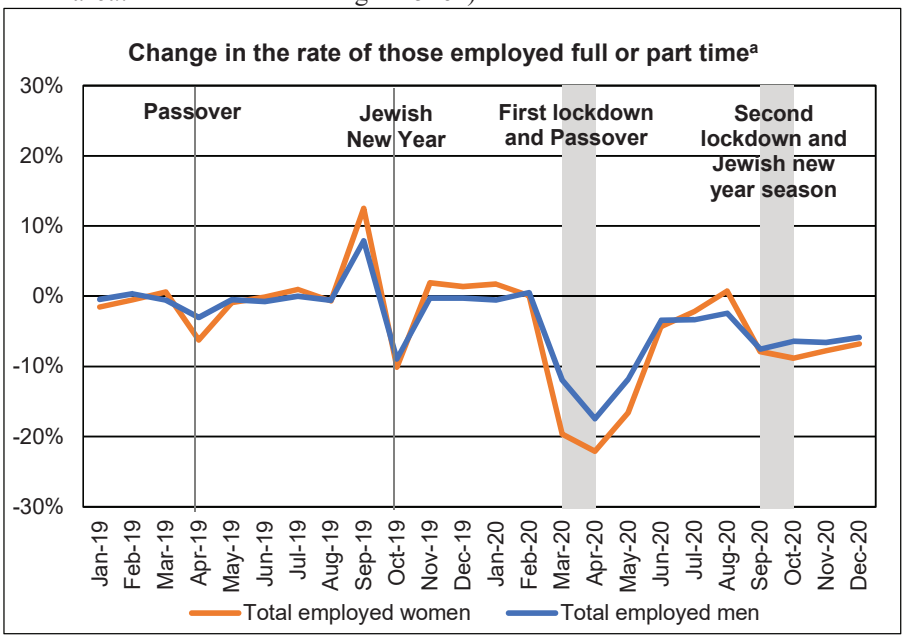
Moreover, for men, the sharp decline in the rate of full-time employees in March and April was partially off set by an increase in the rate of part-time employees (a change that probably reflects a reduction in the number of working hours and not a complete absence).[24] No similar change was observed 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.

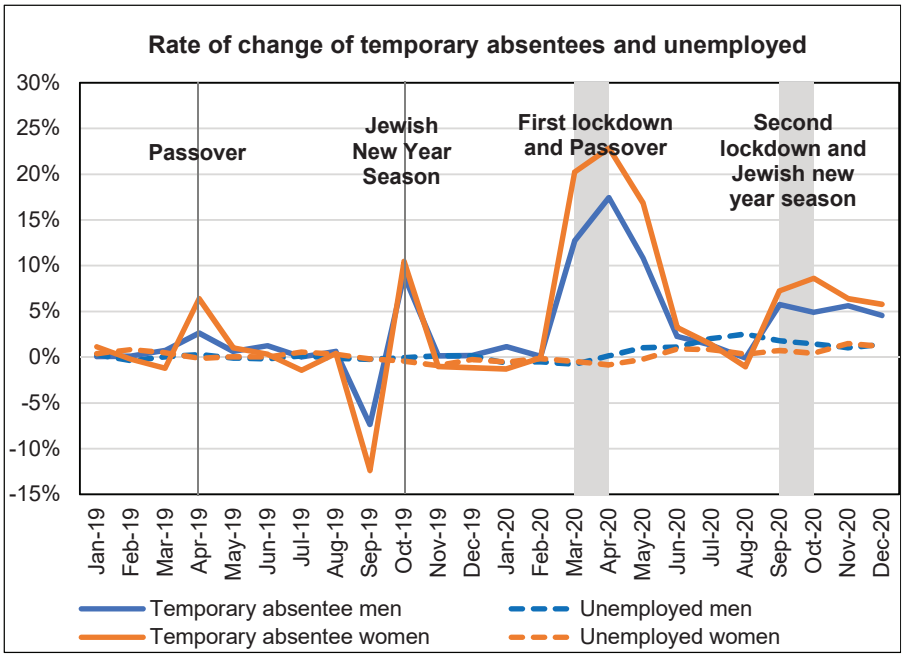
Of those who were employed in the corresponding month in 2019, women were absent more than men in 2020, and the gap was particularly pronounced among the relatively young ages and at the beginning of the crisis.

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).

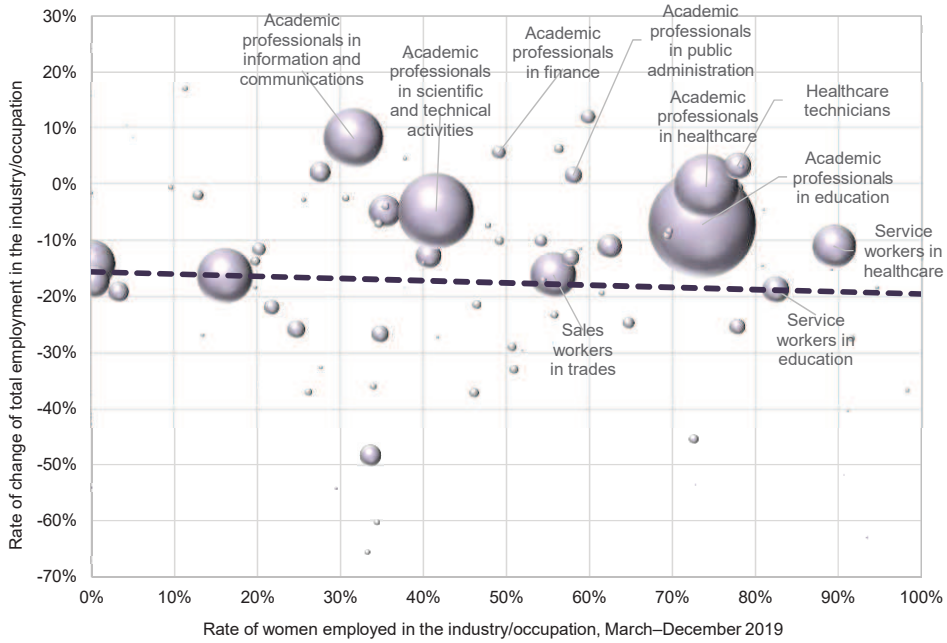
In the older group, aged 50–64, there were also significant gaps between men's and women's absentee rates at the beginning of the period, but they narrowed later on. Due to differences in retirement ages, we would expect women to retire from the labor force more than men, but the differences in retirement rates are not stable over the period.

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.

Differences in how COVID-19 has impacted the employment of men and women have also been found in other developed countries[25], 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

[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



The size of the bubble reflects the weight of the industry/occupation in employment, based on the average for the months March–December 2019. The change in total employment is the average number of employed persons in the industry/profession between March and December 2020 compared with the average number of employe persons between March and December 2019.

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

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]

In most large industries and occupations the changes in the employment of women and men were similar.

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.

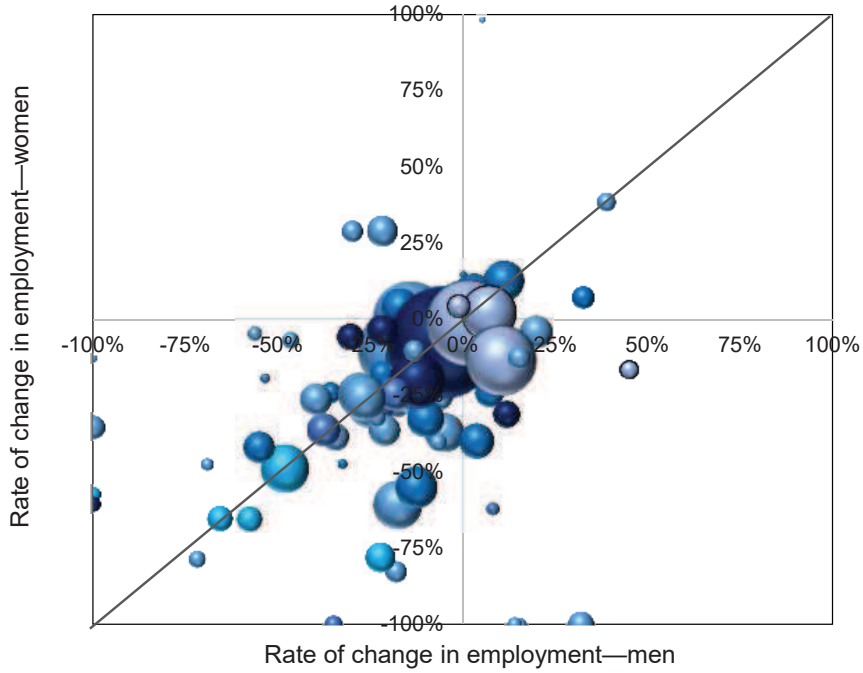
[26] OECD (2020). "Women at the Core of the Fight Against COVID-19 Crisis".

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.

The decrease in the average work hours of women was similar to that of men, and the gap between them did not widen.

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

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.

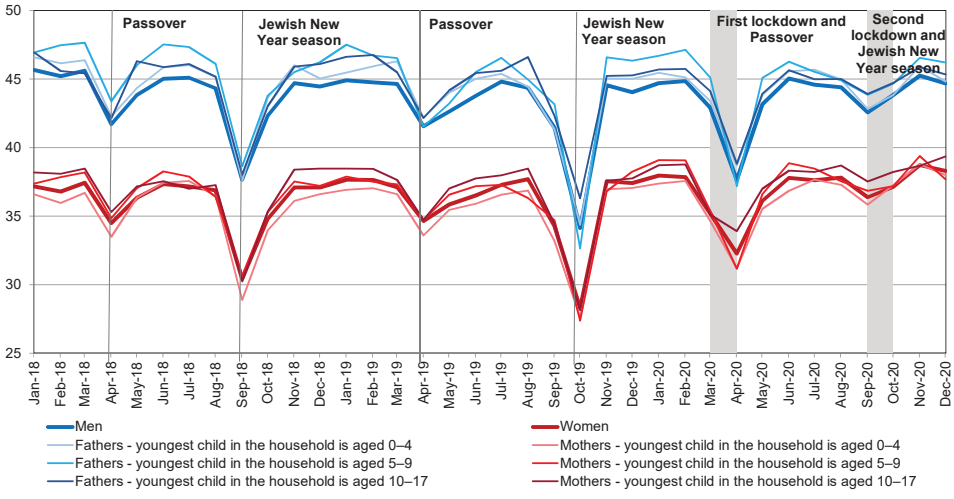
SOURCE: Based on Central Bureau of Statistics Labor Force Surveys.

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

Figure 7.10
Average Number of Work Hours Per Week, by Gender
(Non-*Haredi* Jews aged 25–64)



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

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 Israel[27], 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 Europe[29], 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.

About half of the elderly reported that they were very concerned that they would not be able to cover their expenses.

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

[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+)

	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).

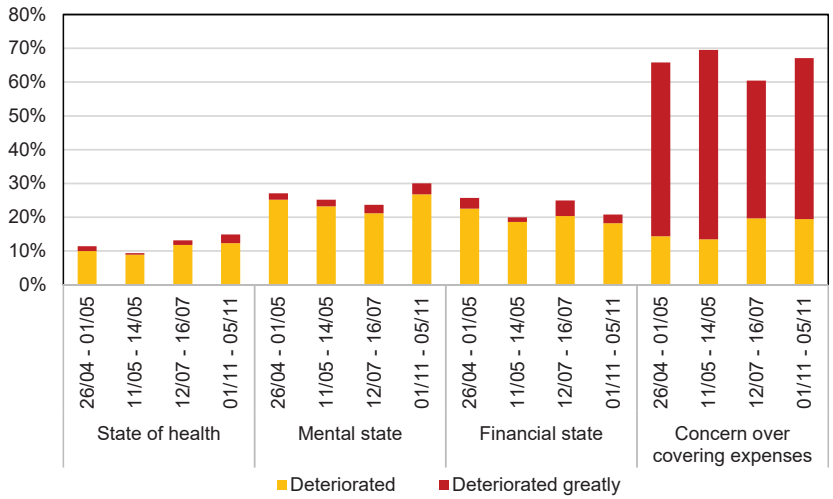
SOURCE: Central Bureau of Statistics Labor Force Surveys and Household Expenditure Surveys.

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 other elderly, more elderly persons living alone reported a deterioration of their health condition, and less of a deterioration of their financial situation.

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

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, due to the low income of many households.

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.

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.

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.

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.

[31] Based on the Central Bureau of Statistics Social Survey, 2016.

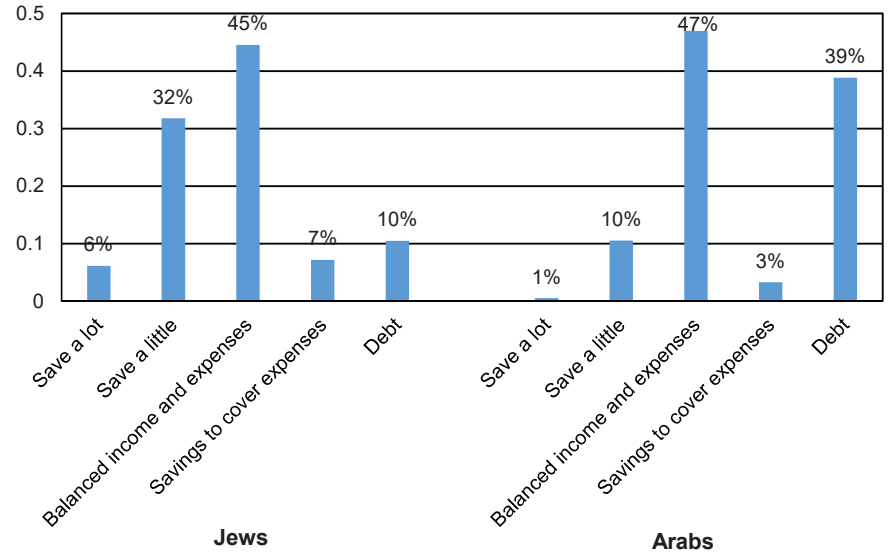
[32] This also includes life insurance, managers' insurance, real estate investments, debt and loan repayments, monetary differentials from the sale and purchase of furniture, equipment, motorcycles, and cars. The payments in the financial savings channels do not include employers' contributions.

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)

(NIS)

	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

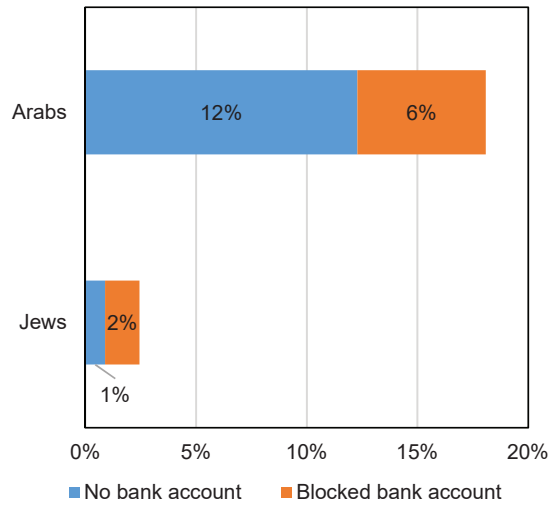
[a] Reported savings are savings according to the Central Bureau of Statistics definition in the Income and Expenditure Surveys. These are savings in savings plans, provident funds, pension funds, life insurance, managers' insurance, real estate investments, repayments of mortgages and housing loans, 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 Statstics 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.

Figure 7.14
Rate of Households Without a Bank Account or With a Blocked Account



SOURCE: Based on Central Bureau of Statistics Long-Term Household Survey (sixth wave, 2018).

b. Economic damage from the COVID-19 crisis in the Arab sector

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.

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.

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 2020survey, 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.

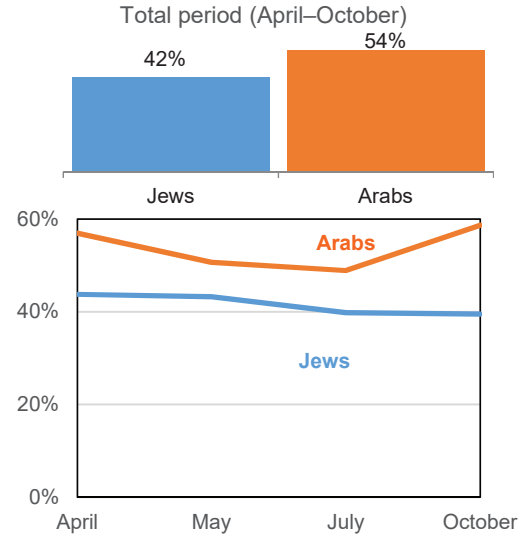
Evidence of the COVID-19 crisis's impact on Arab employees who did not lose their jobs but reduced their employment can be seen in a survey conducted among persistent employees (individuals who worked in all months in which they were sampled in 2019 and 2020) in Labor Force Surveys. The analysis shows 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.

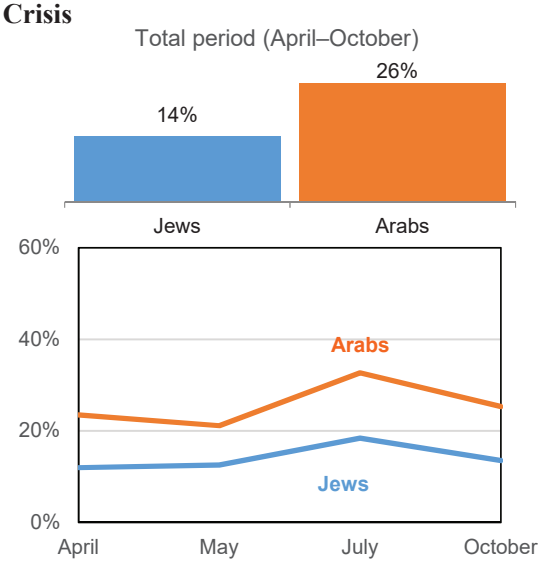
[37] The survey cannot consistently distinguish between unemployed people who lost their jobs due to the COVID-19 crisis and individuals who were previously unemployed.

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) Jewish	(2) Arab	(3) Gross gap[a]	(4) Net gap[b]	(5) Jewish	(6) Arab	(7) Gross gap[a]	(8) 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 pecent 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]

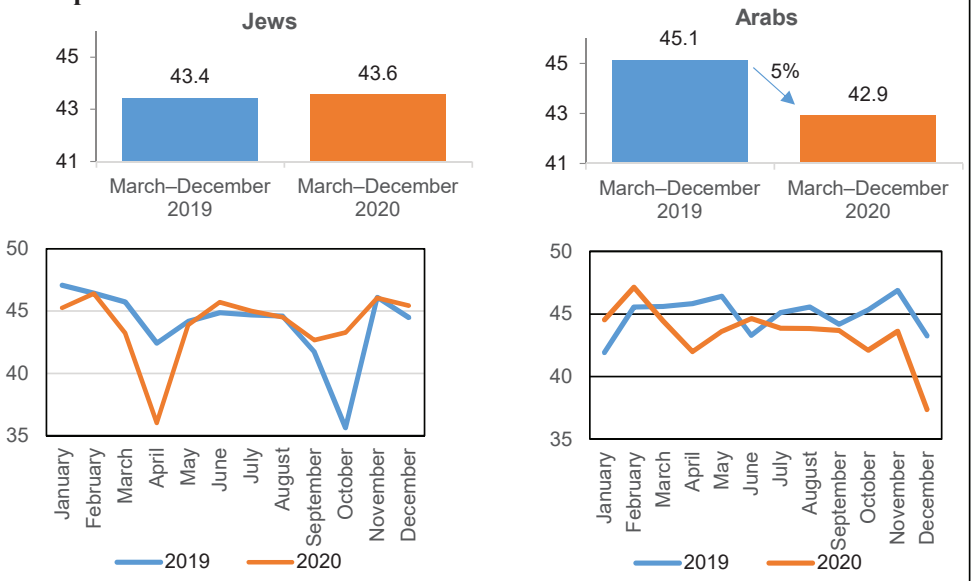
Arabs' studies in the education system and in academia have been severely affected, due to limited access to infrastructure and to the means that enable distance learning.

Asurvey 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

[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.

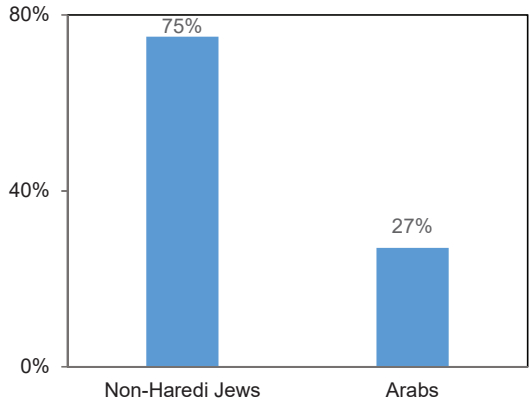
Figure 7.17
Average Number of Weekly Work Hours Among Persistent Workers[a], 2020 Compared with 2019



[a] A persistent worker is defined as an individual who was fully surveyed in the Labor Force Survey (8 times), and worked during the entire survey period.

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

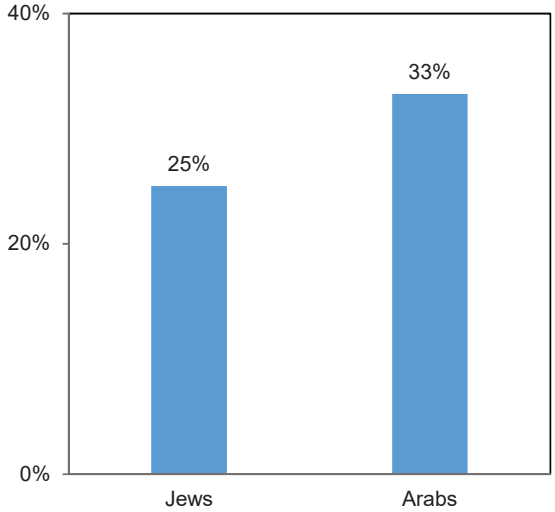
Figure 7.18
Rate of Households with A High Rate of Accessibility to Distance Learning Infrastructure[a]



[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 tests[45], 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.

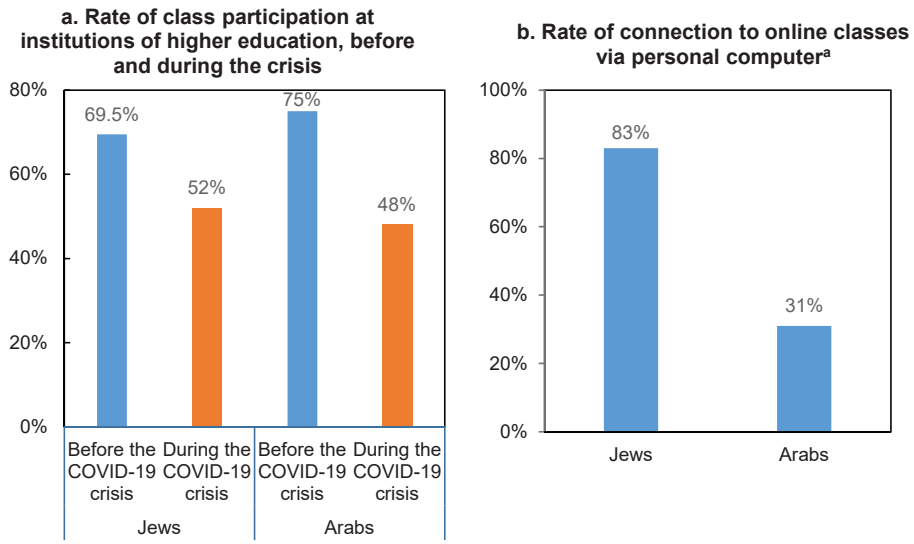
[44] M. Tahaoko, N.H. Haj-Yihya, and H. Matar (2021). "The Gaps between Jewish and Arab students in the COVID-19 Period", Special Policy Paper, Aharon Institute for Economic Policy (in Hebrew).

[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] 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 tests[2], 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),

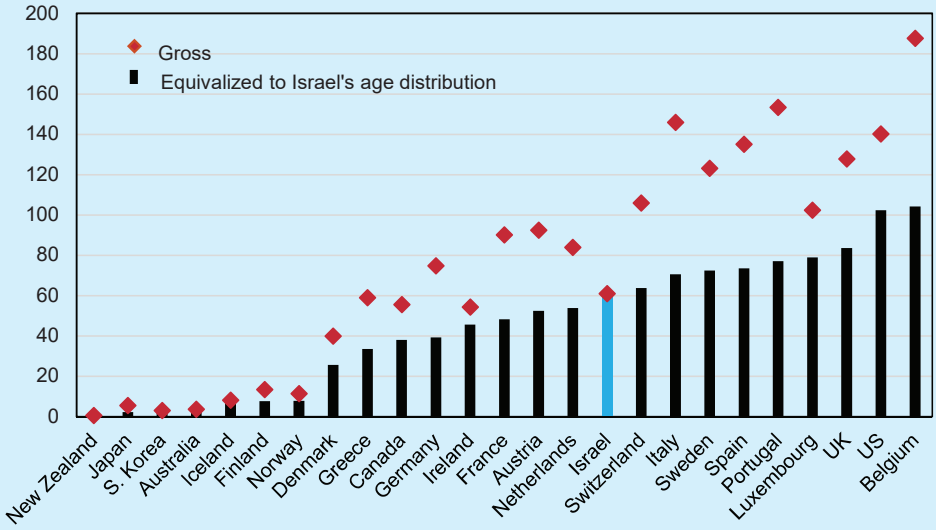
[1] A similar analysis, although aggregated at the statistical areas (neighborhoods) level, appears in the report of the Advisory Committee to the National Security Council, October 2020. We thank the Central Bureau of Statistics staff for preparing the data and providing them to the Research Department.

[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.

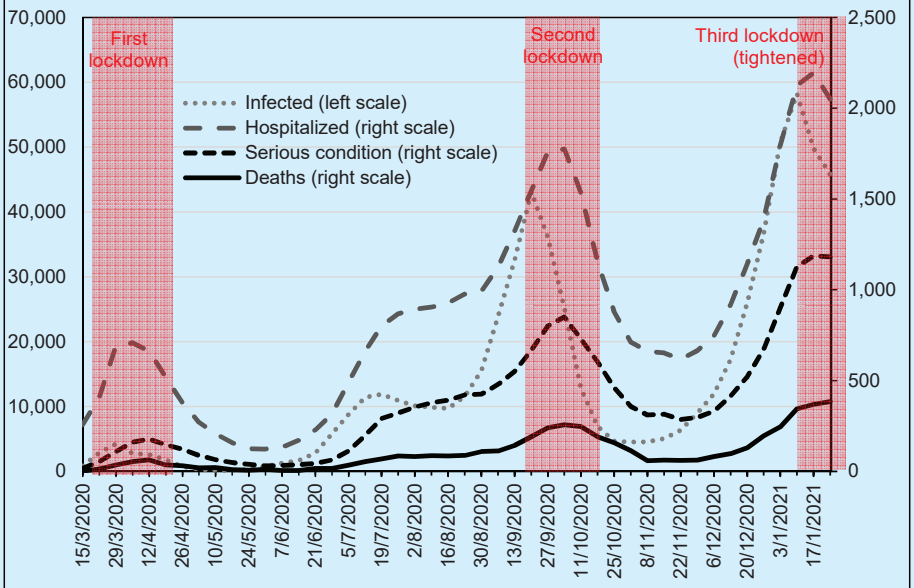
Figure 3a shows that the number of COVID-19 tests per capita among young people up to the age of 29 was relatively low, although the positive rate was high. In older adults the rates of testing and of positive results declined moderately with the age. Many tests were performed on people aged 80 and over, 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.

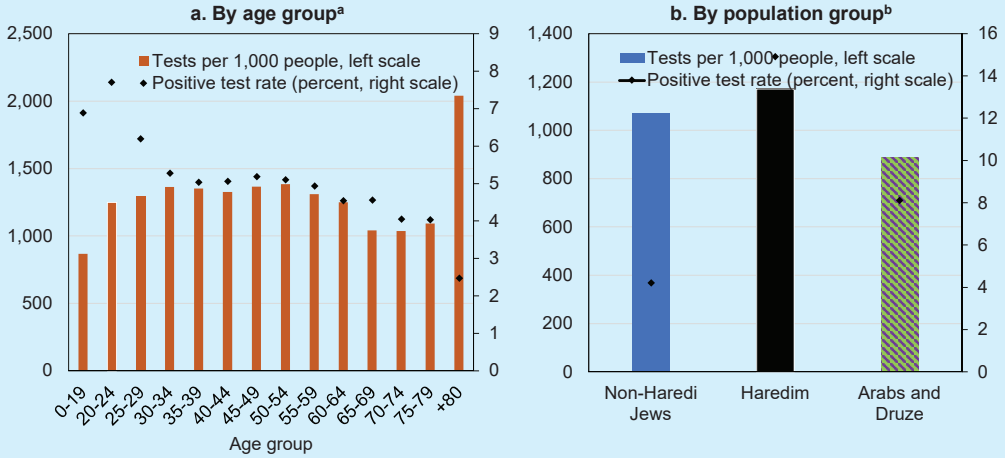
Figure 2
Number of COVID-19 Infect, Hospitalized, Patients in Serious Condition, and Deaths per Week[a]



[a] The week beginning on the date indicated on the horizontal axis. Includes those who are not Israeli citizens. The number of infected and deaths is the weekly *aggregate* number, and those who are hospitalized and in serious condiiton is the weekly *average*.

SOURCE: Based on Ministry of Health (https://data.gov.oil/dataset/covid-19.

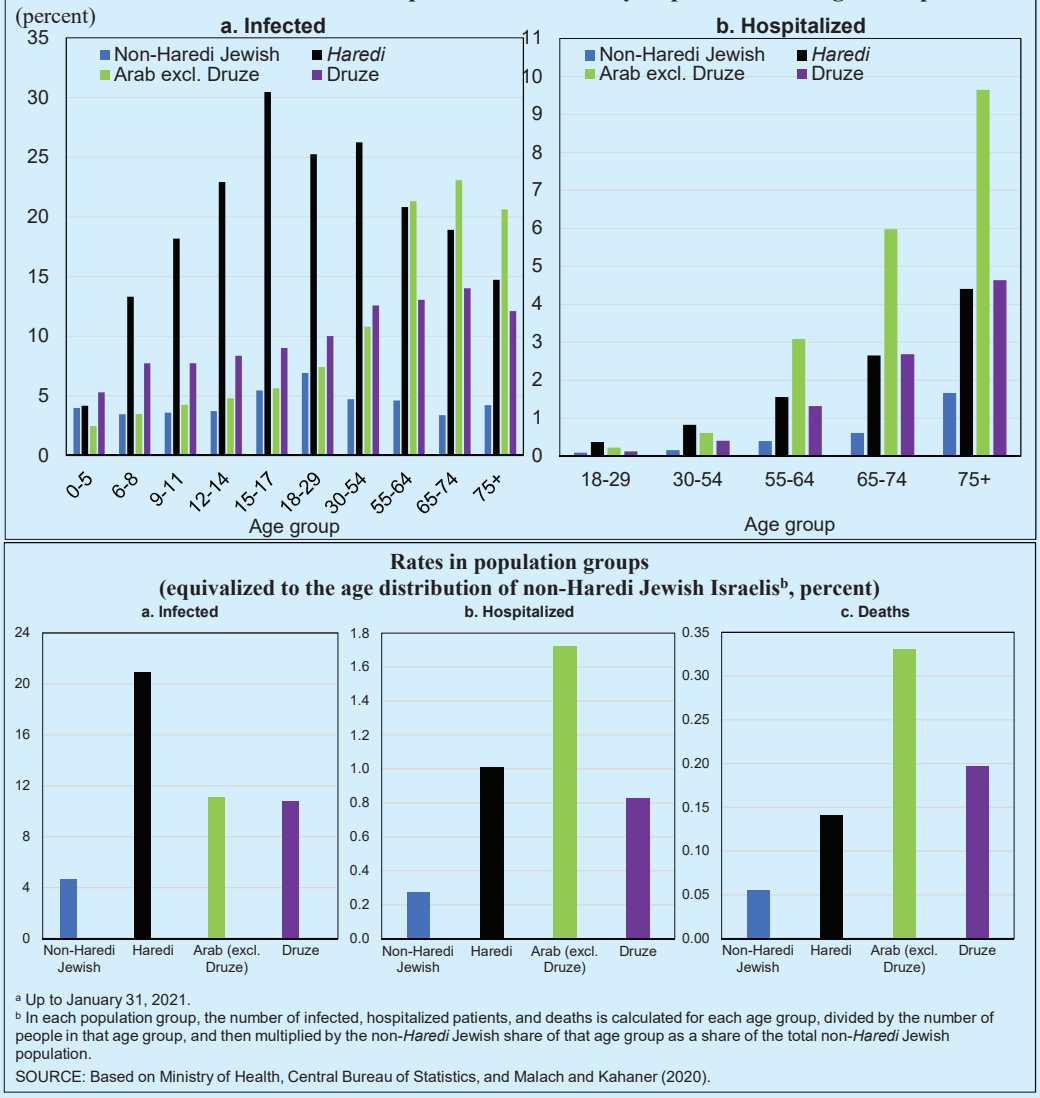
Figure 3
Number of Cumulative COVID-19 Tests per 1,000 Persons and Rate of Positive Tests



[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.

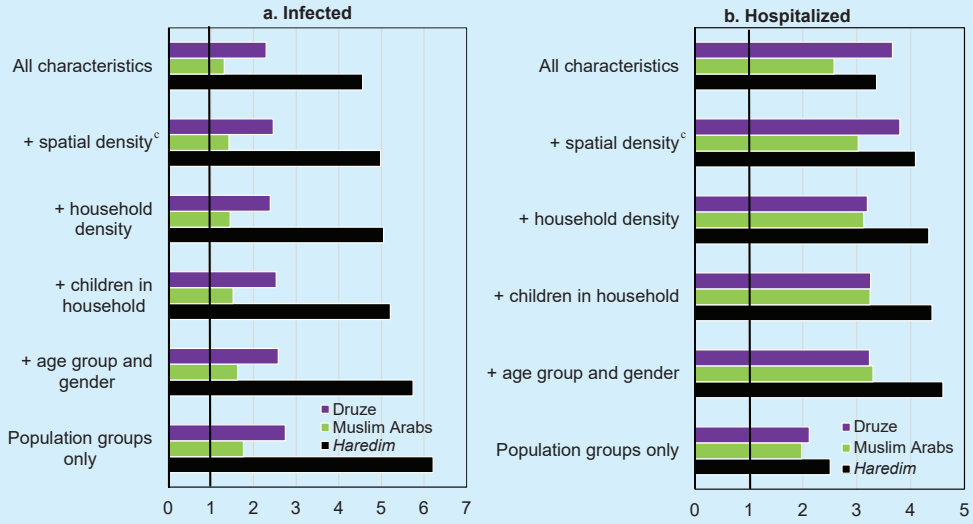
Figure 4
Rate of COVID-19 Infected and Hospitalized Patients[a] by Population and Age Groups



[a] Up to January 31, 2021.
[b] In each population group, the number of infected, hospitalized patients, and deaths is calculated for each age group, divided by the number of people in that age group, and then multiplied by the non-*Haredi* Jewish share of that age group as a share of the total non-*Haredi* Jewish population.
SOURCE: Based on Ministry of Health, Central Bureau of Statistics, and Malach and Kahaner (2020).

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]



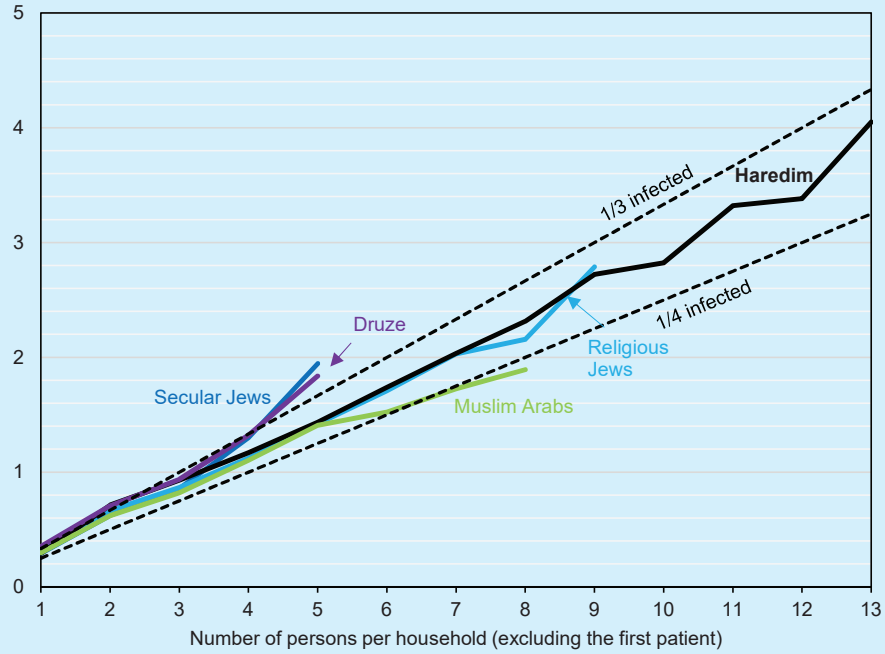
[a] Up to January 31, 2021. Israeli citizens aged 15 and over.
[b] Based on logit estimates of the probability of being infected/hospitalized for COVID-19, as dependent on some/all of the following explanatory variables (characteristics): population group, man, age group, number of children in each age 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 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)

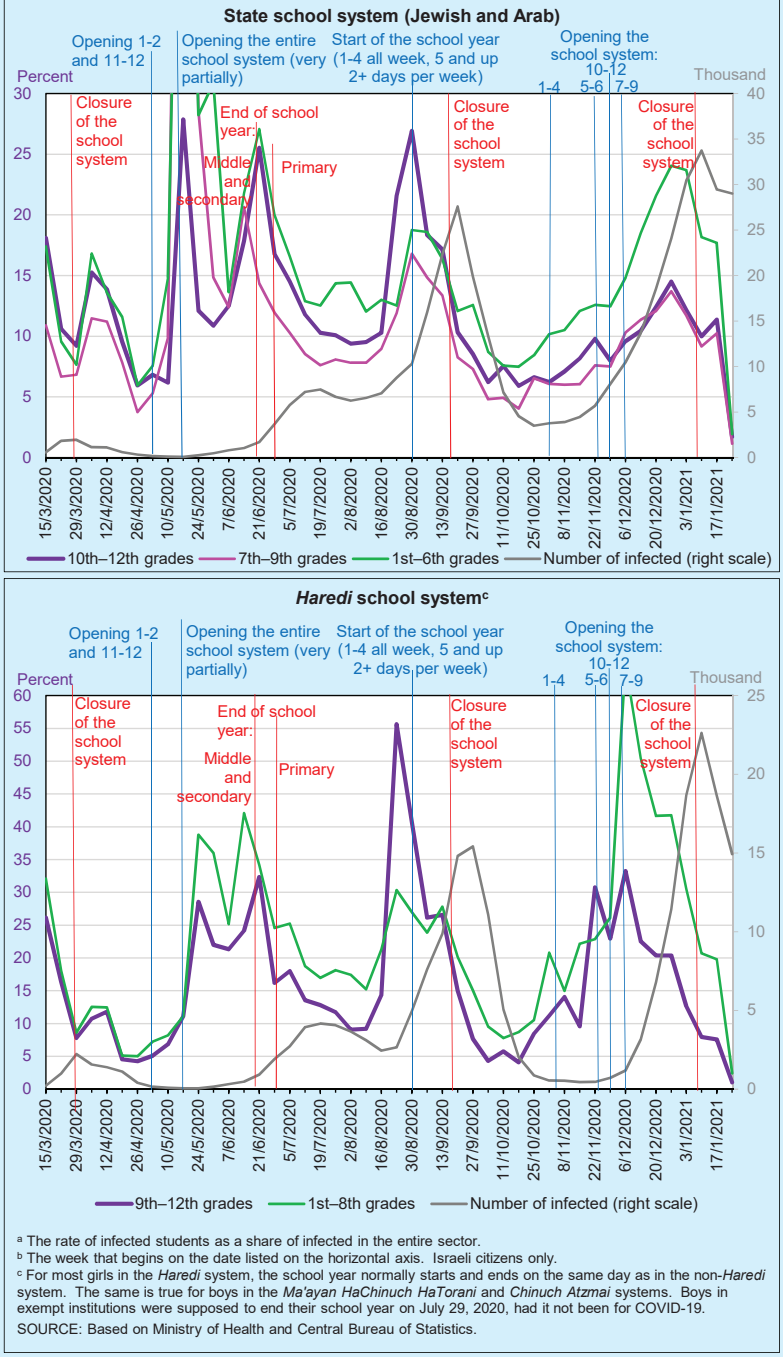
	Jewish school system		Arab school system
	State and State-Religious	*Haredi*	
Grade level		**Students**	
1–3	4.0	14.5	3.4
4–6	4.2	18.3	3.9
7–9	5.4	26.6	4.7
10–12	8.2	29.9	5.8
Higher *Yeshivot*[b]		28.9	
Education stage		**Teachers**	
Primary	8.6	29.8	13.6
Middle	3.9		11.6
Secondary and lower *Yeshivot*	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 factors[9]: 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



[a] The rate of infected students as a share of infected in the entire sector.
[b] The week that begins on the date listed on the horizontal axis. Israeli citizens only.
[c] For most girls in the *Haredi* system, the school year normally starts and ends on the same day as in the non-*Haredi* system. The same is true for boys in the *Ma'ayan HaChinuch HaTorani* and *Chinuch Atzmai* systems. Boys in exempt institutions were supposed to end their school year on July 29, 2020, had it not been for COVID-19.
SOURCE: Based on Ministry of Health and Central Bureau of Statistics.

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

(probability ratio)

Estimated period	Total		Jewish school system		Arab school system	Total
			State	*Haredi*		
	1a	1b	2	3	4	5
Open schools (b)	***1.023	***1.036	***1.052	***1.018	***1.008	***1.048
Up to 2 weeks after their closure (c)	***1.073					
2–4 weeks after their closure (d)	***1.019	***1.019	***1.036	0.998	***0.952	***1.019
(b+c)x*Haredi*						***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 infetions 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.

References

Central Bureau of Statistics (2020). "Increase in Total Mortality in Israel during the COVID-19 Period: Data until the End of October 2020", press release 390/2020. [in Hebrew]

Goldhaber, D., S. A. Imberman, K. O. strunk, B. Hopkins, N. Brown, E. Harbatkin, and T. Kilbride (2021). "To What Extent Does In-Person Schooling Contribute to the Spread of COVID-19? Evidence from Michigan and Washington", NBER Working Paper 28455.

Gurovich, N. and E. Cohen-Kastro (2004). "The Ultra-Orthodox Jews' Geographical Distribution and Demographic: Social and Economic Characteristics of the Ultra-Orthodox Jewish Population in Israel", Working Paper Series No. 5, Central Bureau of Statistics, Jerusalem. [in Hebrew]

Haklai, Z., M. Aburbeh, N. Goldberger, and E. S. Gordon (2021). "Excess Mortality During the COVID-19 Pandemic in Israel, March–November 2020: When, Where, and for Whom?" *Israel Journal of Health Policy Research*, 10:17, https://doi.org/10.1186/s13584-021-00450-4.

Malach, G. and L. Cahaner (2020). "Statistical Report on Ultra-Orthodox Society in Israel 2020", The Israel Democracy Institute, Jerusalem.

Weinreb, A. (2021). "Excessive Mortality and Life Expectancy in Israel in 2020", Taub Center for Social Policy Studies in Israel, Policy Paper No. 02.2021, Jerusalem.