

Chapter 1

The Economy and Economic Policy

- GDP grew by 3.4 percent in 2017, similar to the growth rate in the previous year, and higher than the potential growth rate (about 3 percent). The improvement in the global economy contributed to an acceleration of the increase in uses, and to the increasing share of exports in total uses at the expense of private consumption.
- The job vacancy rate increased in most industries and in most professions, and the unemployment rate is lower than in the past, even in the periphery and among individuals with low education levels. Real wages increased at an accelerated pace in the past three years.
- Investment expanded rapidly in the past two years, in parallel with a decline in the rate of savings. The surplus in the current account therefore declined.
- Increased competition and price reductions initiated by the government moderated inflation. Inflation remained lower than its target range, and lower than inflation abroad, inter alia because the shekel appreciated while Israel adopted a less accommodative monetary policy than some of the other advanced economies. In contrast, the limitation of Israel's production capacity and the increase in commodity prices contributed to the acceleration of price increases in Israel to positive territory. Short-term inflation expectations are lower than the target, but expectations for the third year and onward are within the target range.
- The Bank of Israel maintained its monetary accommodation, but avoided exceptional measures such as a negative interest rate, in view of the good state of economic activity, considerations regarding financial stability, and the assessment that the moderate inflation is a result of, among other things, increased competition and price reductions initiated by the government.
- The pace of home price increases slowed this year thanks to measures taken by the government to expand the supply of homes and reduce demand among investors.
- The public debt to GDP ratio declined, inter alia thanks to one-time tax receipts. The government increased expenditures and reduced taxes, while increasing the structural deficit.
- Between 2008 and 2013, per capita GDP in Israel increased more rapidly than GDP in other advanced economies, but in recent years the rates of increase have been similar. The level of per capita GDP remains lower than in other advanced economies, and the lag in productivity remains.
- The incidence of poverty declined in recent years to the level seen at the end of the 1990s, thanks to the effect of measures taken by the government to increase employment, and even though the government has since sharply reduced its involvement in income redistribution. The incidence of poverty and inequality in net income were—and continue to be—higher than in most OECD countries.
- Increased competition and openness are apparently contributing to an increase in productivity in industries that are geared toward the domestic market, and export activity has been diverted in recent years from the manufacturing industries to the advanced services industries. These changes have large economic advantages, but also bring into sharper relief the challenges facing socioeconomic policy makers in the field of human capital and regarding the distribution of income.

1. MAIN DEVELOPMENTS

The acceleration of world trade contributed to the increase in aggregate demand, but the response is limited since a number of means of production are already contributing less to the growth rate.

Economic activity in Israel grew in 2017 at a similar pace to the previous year, and more rapidly than the potential growth rate. The change in the background conditions that took place this year contributed to an acceleration of the increase in uses (adjusted for one-off fluctuations¹) and affected the composition of growth. Due to the acceleration of world trade and the lack of any essential change in the growth rate of private consumption, exports accounted for a greater share of the increase of uses at the expense of private consumption. On the supply side, the participation rate increased persistently until recently, and is now high and contributing very little to the expansion of employment. Human capital has also made less of a contribution to growth over the years. There was also a short-term factor acting on the supply side: The terms of trade worsened after the marked improvement in the previous year increased the ratio between the GDP deflator and the CPI, thereby increasing consumers' purchasing power.

The current account surplus declined in the past two years, both as a result of the increase in the rate of investment and as a result of the decline in the rate of savings.² In terms of investment, the high demand alongside the decline in the positive contribution of a number of supply factors led to the rapid expansion of investment in the primary industries in the past two years, with the aim of increasing production capacity. Even so, investment as a share of income remains lower than in the past, and is certainly not sufficient to close the gap between Israel and the other OECD countries in terms of the quantity and quality of the public and private stock of capital.

On the savings side, the national savings rate declined in the past two years, due to the decline in private savings. Private savings declined in 2017 because the increase in the ratio of the GDP deflator to the CPI was halted, after increasing the real income of consumers in 2016, and allowing them to sharply increase private consumption without negatively impacting their savings. Private savings also declined due to the payment of taxes on dividends being brought forward, but that did not have a direct effect on national savings, since public savings increased accordingly.³ The decline

¹ According to National Accounts data, the growth rate of private consumption declined from 6.1 percent to 3.3 percent, but this is because many consumers brought forward vehicle purchases from the beginning of 2017 to the end of 2016 in order to benefit from lower green taxes. There was a similar phenomenon among businesses, leading to volatility in the rate of fixed capital formation in recent years. The fluctuations in vehicle purchases also had an effect on the official GDP growth rate, since about half of the value of the purchases is considered value added because sales activity includes a domestic component and because tax payments are also considered value added.

² In recent years, the current account surplus has been higher than in the past and higher than expected taking into account the fundamentals of the Israeli economy. Chapter 7 of the Bank of Israel Annual Report for 2016 analyzes the long-term factors that affect savings, investment, and the current account surplus. The analysis found that, taking the fundamentals into account, savings in the economy are high, while investment is low.

³ Bring the payment forward was a result of legislation regarding companies formed for tax mitigation purposes.

in national savings only partly offset the increase of previous years, and its level is higher than expected, taking into account that the dependency ratio is relatively high in Israel. (More discussion on aggregate activity appears in Chapter 2.)

Despite the strong economic activity environment, inflation totaled 0.4 percent in 2017, lower than the price stability target (1–3 percent), and lower than inflation in other OECD countries. Inflation in Israel began declining in 2013 as a result of the decline in global commodity prices, and has been negative or near zero ever since, even though the economy is in a full employment environment. In contrast, in most OECD countries, inflation has already reached very close to the targets (mostly around 2 percent).

There are a number of factors to the moderate inflation, but it is difficult to quantify and rate their contributions. First, in the past seven years, the government has lowered many of the prices of items subject to price controls, and competition in the economy has increased. The social protests of 2011 led at their peak to public discourse on the cost of living. There was a marked change in consumer behavior, which created pressure to rein in domestic prices due among other things to technological improvements that make it possible to order goods and compare prices via the Internet. Section 4b of this chapter presents signs that the increase in competition and in openness in Israel have moderated the rate of prices increases in the economy in recent years.⁴

Second, the moderate inflation is also connected to the appreciation of the shekel. It is particularly difficult to identify and quantify this factor, since the change in the exchange rate is a result, *inter alia*, of the differences in the monetary environment (prices and policy) between Israel and other countries, which both affect and are affected by the exchange rate.⁵ However, it is possible to assess that some of the factors that contributed to the current account surplus, including the natural gas discoveries in recent years, contributed to the appreciation of the shekel, and thereby to the moderation of inflation. The negative effect of the appreciation on inflation and on the tradable sector is among the considerations for maintaining monetary accommodation, and led the Bank of Israel to continue intervening in the foreign exchange market.

Third, it seems that inflation also remained low because the Bank of Israel decided to avoid unconventional monetary accommodation measures such as a negative interest rate. Countries in the eurozone and other European countries used unconventional tools, and the inflation rates in those countries are already close to the targets. Unemployment in those countries is high, and the unconventional accommodation they adopted is intended to also deal with that problem. In contrast, the Bank of Israel Monetary Committee believes that in view of the good state of economic activity

⁴ Box 3.2 finds that the sub-components with products characterized by a high rate of online purchases showed sharper price declines than other tradable goods. In uniform currency terms (taking the exchange rate into account), they showed similar declines to the declines in other advanced economies.

⁵ Since the beginning of 2014, the shekel has appreciated by 10 percent against the basket of currencies, and by 2 percent against the dollar. The appreciation against the dollar is more prominent since the beginning of 2015 (10 percent).

The Bank of Israel Monetary Committee believed that in view of the good state of economic activity, there is room to balance the need to maintain the credibility of the inflation target with other considerations.

in Israel, there is room for much greater flexibility in the process of convergence to the inflation target.⁶ This flexibility strikes a balance between the need to maintain the credibility of the inflation target and other considerations, including the need to maintain financial stability and the assessment that the moderate inflation reflects declines in price levels as a result of improvement competition and government-initiated price reductions, among other things. Such declines are desirable, and they do not materially contradict the price stability target.

The continued deviation from the inflation target led inflation expectations for the next two years to decline below the target range. Low inflation expectations are themselves a contributing factor to the decline in inflation, and delay its return to the target. Inflation in Israel increased to positive territory (0.4 percent compared with -0.2 percent in the previous year), apparently impacted by the increase in the nominal unit labor cost—in view of the limited production capacity—and the increase in the commodity prices. Inflation expectations for the third year and onward are in the lower part of the target range, signaling that the price stability anchor has been maintained. Sections 3a and 4a deal with monetary policy (and more discussion appears in Chapter 3).

The low interest rate environment in Israel and around the world, and the decline in yields in the bond market, led to a continuation of lower credit prices and lower mortgage interest rates (Chapter 4 contains more discussion on the financial system). Private sector debt as a share of GDP increased this year, but at a slower rate than in the previous years. The increase in debt reflected an acceleration of the expansion of debt raised in the bond market and an increase in bank credit to small and medium enterprises. In contrast, the slowdown in the rate of increase reflected a decline in the rate of increase of household debt (both consumer and housing). The volume of new mortgages taken out was lower than in 2016, due to a decline in the volume of real estate transactions and due to the gradual effect of the increase in purchase tax and of the leverage restrictions imposed in recent years.

High home prices, and the measures to expand supply and reduce demand on the part of investors, led to a slowing of the price increases this year.

In recent years, the number of building starts increased both because supply reacted to price increases and because a policy was adopted to improve the bureaucratic processes. The measures to improve the early planning stages are expected to increase the supply of homes to some extent in the future as well. The high price level and the measures to expand supply and reduce demand on the part of investors, led to a slowdown in price increases this year. The increase in homes prices (1.2 percent during the past year) is a result of the limits on the supply of homes cause by the marketing of land, the approvals process for plans, and the process of construction itself. Supply cannot adjust rapidly enough, despite the improvement in recent years, since some of the bottleneck in the early planning stages has shifted to later stages. Moreover, the Buyer's Price program encourages demand on the part of young couples but does not provide an immediate response to that demand, rather delaying some of the response

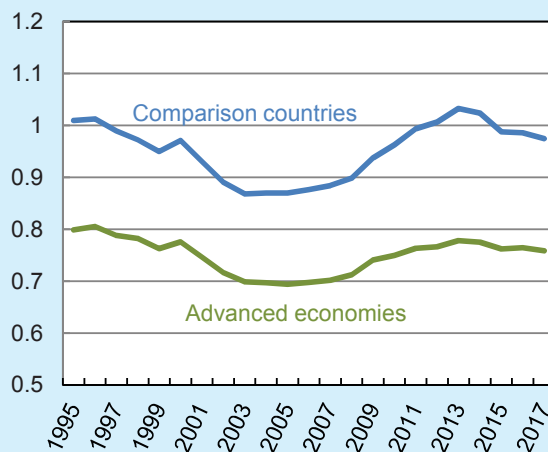
⁶ Such flexibility is made possible in the existing legal regime as long as the Committee believes that the rate of price increases will return to the target within the timeframe set out in the law (two years).

in accordance with the progress of the projects. (Chapter 9 provides more discussion on the housing market.)

In 2017, the government adopted accommodative measures on the expenditure side and on the tax side, but thanks to one-off tax receipts from the tax on dividends and from the sale of Mobileye and Tamar Petroleum, the deficit did not change relative to 2016, and the debt-to-GDP ratio continued to decline (Table 1.1). However, taking into account that these receipts are one-off, it shows that the structural deficit increased by 1.4 percent. The deficit in the coming year is expected to be similar to the target, but the increase in the structural deficit raises the likelihood that additional adjustments will be needed later on. Sections 3b and 4a deal with fiscal policy (and more discussion appears in Chapter 6).

Per capita GDP in Israel (Table 1.1) is 24 percent lower than the average in the group of advanced economies (according to the International Monetary Fund classification, Figure 1.1). While it grew more rapidly than the average in those countries between 2008 and 2013, the growth rates have been similar in recent years. Compared with countries whose per capita GDP was similar to Israel's at the beginning of the sample period (1995), the situation is similar, although in this case, the ratio declined slightly in the past four years. In both cases, the ratio is similar to what it was in 1995, and even declined slightly, although there was volatility over the years. This stability is the result of the increase in the relative employment rate while relative productivity declined.⁷ Chapter 2 recommends measures that may increase productivity. This chapter focuses on the structural changes that increased competition in the industries that sell mainly to the domestic market (Section 4b), and on the diversion of export activity from the manufacturing industries to the advanced services industries (Section 4c).⁸

Figure 1.1
The Ratio Between Per Capita GDP in Israel and in Other Countries^a, 1995–2017



^a The value 1 reflects absolute equality between per capita GDP in Israel and the simple average of per capita GDP in the group of other countries. Advanced economies—according to the International Monetary Fund (and not according to the OECD). The group of comparison countries includes countries where per capita GDP in 1995 was similar to that of Israel (within 20 percent higher or lower).

SOURCE: International Monetary Fund.

In 2017, the government took accommodative steps on the expenditure side and on the tax side, while increasing the structural deficit. This made it more likely that additional adjustments would be required in the future.

The current ratio between per capita GDP in Israel and in other advanced economies is similar to the ratio in 1995.

⁷ More discussion of the components of the per capita GDP ratio appears in the Bank of Israel Annual Report for 2016, Chapter 1.

⁸ Chapter 7 deals more in depth with the increase in services exports as a share of total Israeli exports.

Table 1.1
Main Developments, 2012–17

	2012	2013	2014	2015	2016	2017
GDP ^a	2.2	4.2	3.5	2.6	4.0	3.4
Private consumption ^a	2.8	3.7	4.5	3.9	6.1	3.3
Exports (excluding diamonds) ^a	1.7	2.8	3.0	-0.8	2.2	5.4
Mean population (million)	7.9	8.1	8.2	8.4	8.5	8.7
Nominal GDP (NIS billion, current prices)	992.1	1056.1	1103.5	1162.5	1220.3	1262.9
Per capita GDP (NIS thousand, current prices)	125.5	131.1	134.4	138.8	142.8	145.0
Goods and services exports (\$ billion, current prices) ^b	84.4	88.1	90.0	86.3	88.8	95.6
Goods and services imports (\$ billion, current prices) ^b	85.2	83.8	86.5	78.3	83.1	90.9
Current account of the balance of payments (surplus, \$ billion)	1.6	8.7	11.9	15.5	12.0	10.5
Overall government deficit (as a percentage of GDP)	4.1	3.8	2.9	2.1	2.3	2.2
Public debt (as a percentage of GDP)	68.3	67.1	66.1	64.0	62.3	60.8
Employed persons in Israel (thousands)	3359.0	3449.5	3555.8	3643.8	3736.9	3824.8
Unemployment rate ^c	6.9	6.2	5.9	5.3	4.8	4.2
Real wage per employee post (yearly average, percent change)	0.5	0.9	1.1	2.9	2.8	2.9
Poverty rate (percent)	23.5	21.8	22.0	21.6	21.9	-
Inflation ^d	1.6	1.8	-0.2	-1.0	-0.2	0.4
Bank of Israel interest rate ^c	2.3	1.4	0.6	0.1	0.1	0.1
Real yield on 10-year government bonds ^c	2.1	1.6	1.0	0.5	0.4	0.6
Real one-year interest rate ^c	0.2	-0.3	-0.7	-0.5	-0.1	-0.1
Real effective exchange rate ^c	5.3	-5.7	-1.3	-0.1	-1.9	-4.5
NIS/\$ exchange rate (yearly average)	3.86	3.61	3.58	3.89	3.84	3.60
Tel Aviv 125 index ^f	7.2	15.1	6.7	2.0	-2.5	6.4
Global trade ^a	2.7	3.6	3.8	2.8	2.4	4.2

^a Percent rate of change^b Excluding diamonds^c Yearly average, percent^d December compared to the previous December, percent^e Rate of change of the year's average compared to the previous year's average (percent).^f Nominal rate of change - the last day of December compared to the last day of the previous December.

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

These changes may increase productivity in Israel and reduce the gap between Israel and the comparison countries. However, as of now, it is difficult to separate the positive effect caused by durable factors such as these from the temporary effects created by the business cycle.

The structural changes also include the transition of workers between industries. Such workers are rapidly absorbed in new workplaces due to the increasing global demand and high domestic demand. However, if there is a negative shock to demand

in the short-to-medium term, it could be reflected in an increase in unemployment, which will become stronger in view of the structural change in the background. The government will have difficulty softening the blow if necessary, since compared to other advanced economies, Israel rarely adopts an active labor market policy (ALMP), particularly professional and technological training programs. It is therefore recommended to strengthen the active policy, since successfully dealing with challenges of this kind depends on the individuals' basic skills, and on their ability to adjust to a changing reality. Section 5 discusses socioeconomic issues, particularly the challenge faced by the education system in the area of basic skills, since improved human capital is the key to long-term inclusive growth.

The structural changes in the economy may increase productivity, while also changing the industry composition of employment and creating a risk of structural unemployment in the short-to-medium term.

2. GLOBAL DEVELOPMENTS

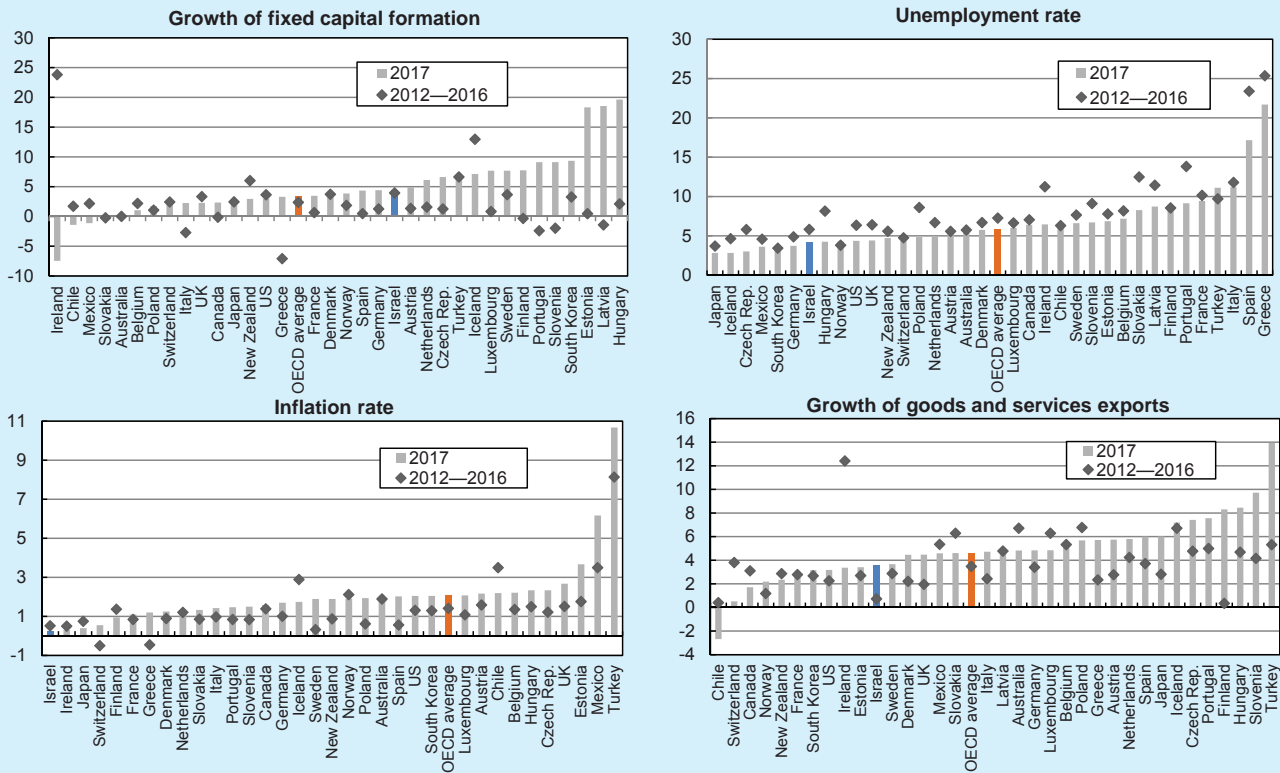
In most countries, the growth rate accelerated with an increase in energy prices and inflation, and it seems that growth in most countries is higher than the potential growth rate. As such, some of the central banks are already gradually retreating from their accommodative policies. The Federal Reserve increased its interest rate in August (and in January 2018), and it is expected to continue increasing the rate gradually in the coming two years. The Bank of England increased its interest rate in view of some decline in concerns over the implications of Brexit and an increase in inflation and in the utilization of means of production. In contrast, the European Central Bank continues to use unconventional monetary accommodation, although it announced its intention to reduce asset purchases beginning in early 2018. The Bank of Japan continued its strong monetary accommodation.

Global growth accelerated this year, world trade increased, there were sharp price increases on the capital markets, and fixed capital formation expanded.

Fiscal policy around the world is mixed, and it seems that fiscal accommodation is being carried out mainly in the US. The administration announced during the year that it intends to pursue fiscal accommodation mainly by significantly lowering tax rates, mainly corporate tax. This program was launched toward the end of the year, and is expected to expand investments, mainly in the short term, but in the long term it could increase debt. Perhaps for this reason, the dollar weakened relative to other currencies, particularly in the first half of the year. In contrast, fiscal policy in Europe is largely neutral, except in Germany where it is in an accommodative trend.

Following the broad crisis and the fragile recovery around the world in the past eight years, it seems that the recovery became entrenched this year. Unemployment in most of the OECD countries is lower than the average of the previous five years (Figure 1.2), remaining extremely high only in Greece and Spain, and somewhat high in Italy and Turkey. Since economic activity improved rapidly in most countries, world trade increased, together with exports in most countries. The European and Asian economies even improved more rapidly than expected, after being surprisingly weak for a number of years. As a result of the positive surprise, the International Monetary Fund revised its growth forecast for the coming two years, with its assessment now

Figure 1.2
Selected Indices of Economic Developments in the OECD Countries, 2017 and the Average Between 2012 and 2016 (percent)



SOURCE: Based on OECD.

being that the growth rate will accelerate.⁹ Optimism regarding the global economy contributed to sharp price increases in the capital markets around the world, and investments recovered significantly. In most countries, investment increased in 2017 at a significantly higher rate than the average of the previous five years, and 2 percentage points higher than the OECD average in 2016. This may increase potential global growth in the future, and extract the global economy from the “low growth trap”.¹⁰

⁹ In January 2018, the IMF raised its forecast of global GDP growth for 2018 and 2019 from 3.7 percent to 3.9 percent. Global growth in 2017 was 3.7 percent.

¹⁰ Chapter 1 of the Bank of Israel Annual Report for 2016 provides a lengthy discussion of the “low growth trap” and the long-term processes that may weigh down upon global growth.

Table 1.2
Economic indicators: International comparison^a, 2016–17

	2016				2017			
	Israel	US	Eurozone	OECD	Israel	US	Eurozone	OECD
GDP growth rate	4.0	1.5	1.8	1.8	3.4	2.3	2.3	2.4
Per capita GDP growth	1.9	0.8	1.4	1.9	1.4	1.5	-	1.8
Per capita GDP (\$ thousand, current prices)	37.2	57.6	42.1	36.9	40.3	59.5	44.0	-
Population growth rate	2.0	0.7	0.4	0.6	1.9	0.7	0.4	0.6
Civilian labor force participation rate, ages 25–64	79.9	77.0	-	77.3	80.0	-	-	-
Unemployment rate	4.8	4.9	10.0	6.3	4.2	4.4	9.1	5.8
Inflation rate (during the year)	-0.2	2.1	1.1	0.7	0.4	2.1	1.4	1.8
Exports (percent of GDP) ^b	27.9	11.9	45.8	28.2	27.2	-	-	-
Gross investment (percent of GDP)	20.5	19.7	20.3	22.0	20.7	19.8	20.6	22.5
National savings (percent of GDP)	24.3	18.0	23.8	23.6	23.7	17.5	24.2	24.0
Current account (percent of GDP)	3.8	-2.4	3.6	0.2	3.0	-2.4	3.4	0.3
Public expenditure (percent of GDP) ^c	38.8	35.6	-	43.6	40.0	35.8	-	43.0
Tax revenue (percent of GDP) ^d	31.1	26.7	-	34.6	32.6	26.7	-	-
Gross public debt (percent of GDP) ^c	62.3	107.1	88.9	86.5	60.8	108.1	87.6	85.4

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

^b For Israel—exports excluding diamonds.

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

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

SOURCE: International Monetary Fund, OECD and Bank of Israel.

3. ECONOMIC POLICY

a. Monetary policy

The Bank of Israel left its accommodative policy in place, leaving the interest rate at the low level of 0.1 percent, continuing to purchase foreign exchange, and using forward guidance to moderate the future interest rate path in entrenching inflation within the target range. There were far fewer foreign exchange purchases in the second half of the year, and they were made mainly as part of the program to offset the effect of natural gas production on the current account.¹¹ The Bank of Israel Monetary Committee changed the formulation of its forward guidance in April. Instead of announcing

¹¹ In January 2018, the Bank of Israel resumed purchasing large volumes of foreign exchange.

its assessment that the interest rate will remain accommodative for a considerable time, the Bank of Israel Monetary Committee announced that the accommodative policy would remain in place as long as necessary in order to entrench the inflation environment within the target range.

The Monetary Committee decided to leave the accommodative policy in place—without reduction or further accommodation—because it is required to balance the need to achieve the inflation target with the need to maintain financial stability, taking into account the boom in real economic activity. This challenge is brought into sharper relief in view of the fact that further accommodation will require unconventional measures, such as a negative interest rate.

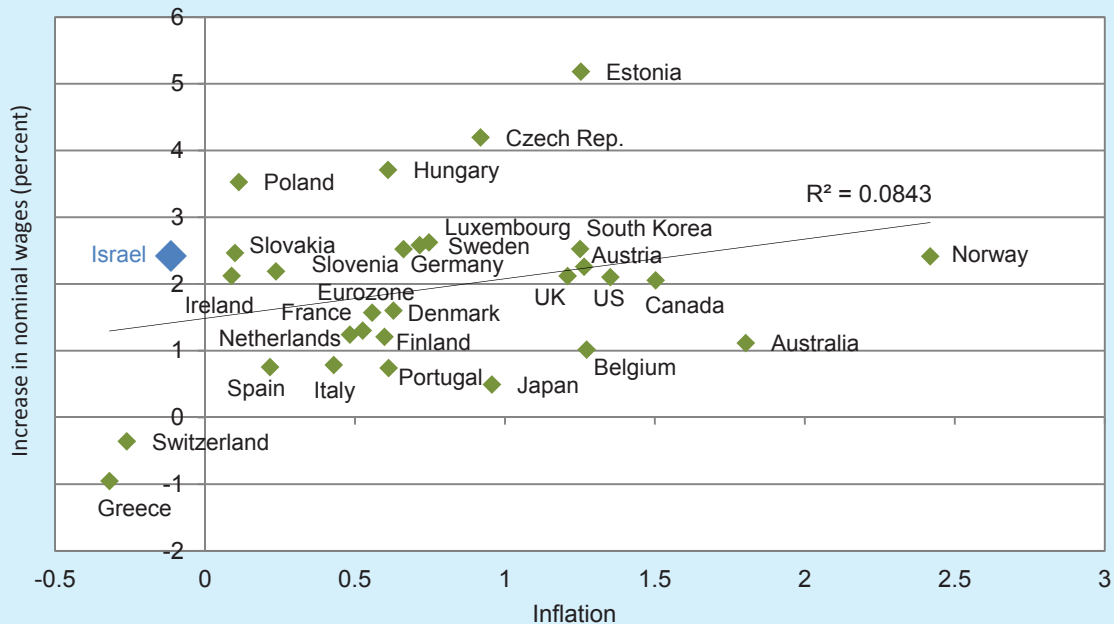
As stated, the inflation rate in Israel is near-zero. The tradable goods price index declined this year by 1.1 percent, and the nontradable goods price index increased slightly (1.1 percent) compared with its pace of increase prior to 2015, even though the full employment environment has become entrenched. Moreover, the increase in the GDP deflator declined as well, to near zero, after greater increases in the past three years. A decline in the prices of some goods, such as those that are affected by increased competition, may have an effect on the general inflation environment, inter alia through inflation expectations. Short-term expectations are lower than the inflation target, and may moderate employees' wage demands and the pricing of goods and services in the future. The low inflation and expectations that it will remain low therefore explain the need for continued accommodation.

The Bank of Israel avoided lowering the interest rate to below zero even though inflation has diverted from the target since mid-2014, for a number of reasons. First, the Monetary Committee's assessment is that inflation is low temporarily, since long-term expectations (for the third year and onward) are within the target range¹² and the advanced economies are gradually returning to the inflation targets. Second, the low inflation that is currently prevalent is not consistent with the economy's position along the business cycle, and particularly with the high rate of wage increases, among other things because inflation is low due to increased competition and government-initiated price declines. Israel is exceptional in the OECD in terms of the gap between the increase in nominal wages and inflation during the past three years (Figure 1.3). Finally, the need to maintain financial stability has been an important consideration against unconventional monetary accommodation. Section 4a provides a more in-depth discussion of the financial risks in the low interest rate and the boom in real economic activity.

The low inflation explains the need for continued monetary accommodation, but the Bank of Israel avoided deepening accommodation due to its assessment that the deviation of inflation from the target is temporary, and that it results from increased competition and government-initiated price reductions, among other things.

¹² A prolonged decline in the inflation environment may narrow the room for using the interest rate tool. When expectations are negative, a lower nominal interest rate is required in order to achieve an accommodative real interest rate. As such, the limitation of a negative interest rate acts more rapidly.

Figure 1.3
Inflation and the Increase in Nominal Wages in Israel and in Other OECD Countries, 2014–17



SOURCE: Based on OECD.

b. Fiscal policy

Government revenue exceeded the budget forecast, mainly due to the tax incentive given to the distribution of dividends and to the sale of Mobileye and Tamar Petroleum. Public expenditure increased, because the government decided, as part of the 2017–2018 budget, to increase expenditure beyond the rate set by the expenditure rule. The increase reflected accelerated growth of government investment, expenditures that are temporary in nature and contribute to growth, but also an increase in public consumption and in transfer payments, which are continuing in nature. However, even though public expenditure increased more rapidly than GDP and the government reduced taxes, it ended the year with a deficit that was lower than the ceiling and a decline in the debt-to-GDP ratio, because revenue exceeded expectations.

The government's measures show its desire to expand the welfare policy and reduce the tax burden at the same time. The government decided to lower corporate tax and to grant tax benefits to working parents as part of the "Net Family" program. At the same time, it committed to increase expenditure on a continuing basis in a number of items. The government signed an agreement with the secondary school teachers union that is expected to increase the wages of new teachers at an accelerated pace; it decided to institute a comprehensive reform in long-term care insurance (see Box 8.1) and to

Both tax reductions and increased expenditures may contribute to well-being or growth, but the combination of these measures carries a risk in view of the one-off nature of the growth in revenue.

increase disability benefits starting in 2018; and it decided to subsidize after-school care and to increase the earned income tax credit in the coming years. Moreover, a public committee that examined productivity in manufacturing recommended measures in the area of innovation and manpower, and these decisions may have an effect on the budget. While each of these measures may contribute to welfare or to growth, the combination of them carries a risk in view of the one-off nature of the increase in revenue and the increased structural deficit it involves. Section 4a discusses this risk, among other things. Section 5 deals with the long-term aspects of government policy.

4. ISSUES IN ECONOMIC DEVELOPMENTS

a. Policy in a full employment environment

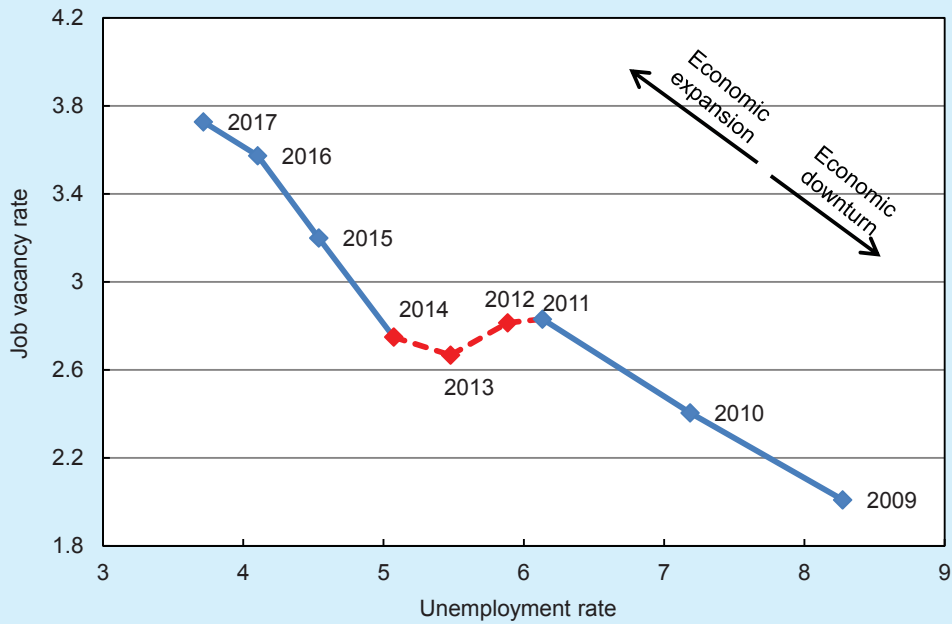
Section 3 showed how monetary policy and fiscal policy are accommodative even though growth and employment are strong. This section expands on the possibility that the economy has reached its production capacity limit, and discusses the results that accommodative policy can achieve in such an environment.

The growth rate in the past five years, adjusted for one-off factors, is similar to the potential growth rate, and it can be assessed that activity in Israel is not far from its potential level. The output gap is near zero according to various measurement methods, and in the past two years there have been other signs in Israel that hint to the creation of a supply restraint in domestic production: the export surplus contracted, reflecting the increasing use by the economy of external sources in order to provide for demand; and the job vacancy rate increased (in most industries and in most professions; see Chapter 2) with a parallel decline in unemployment for the third consecutive years (the upper portion of Figure 1.4), reflecting the tightening of the labor market (in this context, it should be noted that the decline in unemployment between 2011 and 2014 was not accompanied by an increase in the job vacancy rate, and reflected a positive shock to supply due to the decline in the natural unemployment rate); the unemployment rate is also lower than in the past in the periphery and among individuals with low levels of education (see Chapter 8); the nominal unit labor cost increased despite the near-zero inflation; and the rate of return on labor increased after a prolonged decline, apparently because competition created pressure on firms in both the labor market and the product market. Chapter 5 deals at length with the return on labor, and finds that the turnaround in the ratio between the GDP deflator and the CPI (the GDP deflator recently increased more rapidly) plays a vital role in explaining the turnaround in the return on labor.

Despite the impressive decline in unemployment, it is not possible to determine in real time whether its rate has reached bottom. The lower portion of Figure 1.4 shows that many countries previously enjoyed unemployment rates that were lower than the current rate in Israel (3.7 percent among the prime working age population).

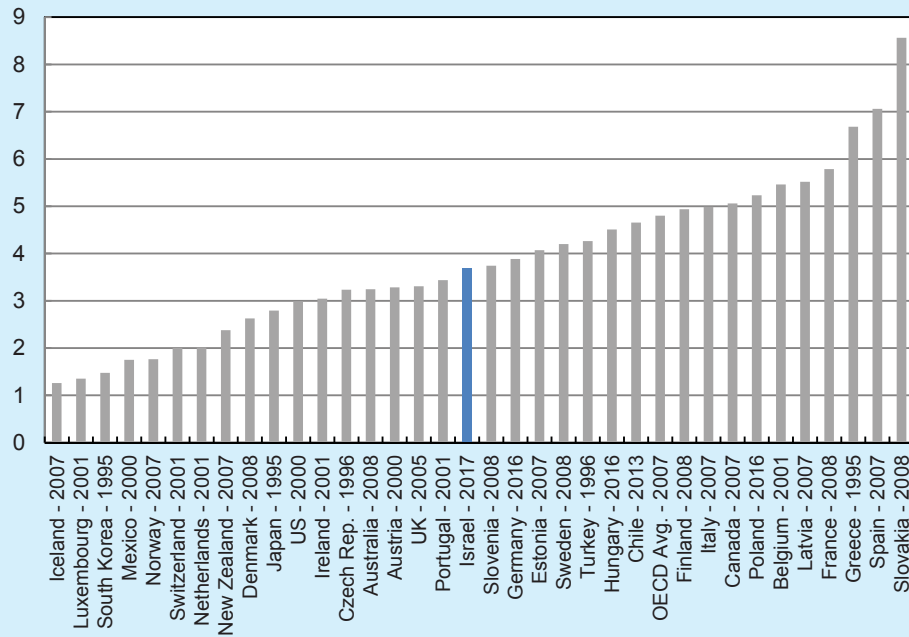
In the past two years, the signs of supply restrictions in domestic production have increased, but it is not possible to determine in real time whether the unemployment rate has reached its bottom.

Figure 1.4
Unemployment Rate Among Those Aged 25–64 and Job Vacancy Rate in the Business Sector, 2009–17 (percent)



SOURCE: Based on Central Bureau of Statistics.

The Lowest Unemployment Rate Among Those Aged 25–64, Israel and Other OECD Countries, 1995–2016^a



^a In Israel – 2017. In that year, unemployment reached its lowest rate between 1995 and 2017.

SOURCE: Based on OECD.

For instance, the unemployment rate in the Netherlands reached 2 percent in 2001. It is therefore not impossible that the unemployment rate in Israel will continue to decline. To illustrate, unemployment is still relatively high among workers from a weak background, despite the narrowing of gaps, and it is possible that if a policy is adopted to improve their compatibility with professions that are in high demand, unemployment could decline further.

Inflation in Israel is low despite the production capacity limitation. Monetary accommodation is necessary in order to maintain the price stability anchor, but the low interest rate in a high demand environment comes with risks. First, the ratio between home prices and rents increased until recently, *inter alia* because investment in dwellings generated higher yields than investment in other channels in the short and medium terms.¹³ This exposes the financial institutions and households to the risk of a turnaround in the employment situation and/or a sharp decline in home prices. Second, in view of the low interest rate in risk-free channels, the financial system is particularly exposed to a decline in the yield spreads of corporate bonds, against the background of high liquidity in the markets and yield seeking. Finally, financing the purchase of a vehicle carries a risk to financial entities, households, and businesses in the vehicle field. As a result, this year the Banking Supervision Department directed the banks' attention to the risks inherent in the provision of credit with a vehicle as collateral. However, despite the risks, the financial system remained robust. Household leverage is low by international comparison, and the risk from the housing market even declined this year in view of the significant moderation in the increase of home prices and the decline in the volume of new mortgages taken out (see details in the Financial Stability Reports for 2017).

Fiscal policy makers are adopting accommodation despite the good state of growth and employment. This policy also carries risks since it includes both a reduction of taxes and an increase in expenditures that are permanent in nature. If tax receipts do not carry a positive surprise in the coming years, and even more so if they carry a negative surprise, the government will need to deal with the increase in the deficit and with another change in tax and/or expenditure policy. The resulting fiscal risk seems small at this time because the debt-to-GDP ratio is trending downward. However, the ratio may increase rapidly if a crisis develops, as happened in the past in Israel and as happened in a number of countries over the previous decade (See Figure 6.1 in Chapter 6). If such a scenario in Israel is accompanied by moderation of business activity, the government may be forced to take restrictive measures precisely when fiscal accommodation is required. Moreover, frequent changes in fiscal policy have a negative impact on the abilities of businesses and households to plan their moves, and therefore damage the efficiency of the economy in the long term.

¹³ See Box 3 in the Financial Stability Report from December 2017.

b. Implications of competition and openness of the economy

In the past three decades, the government has adopted a number of measures to increase competition and openness in the Israeli economy. The program to expose the Israeli economy to competing imports was accelerated in the mid-1990s, which constitutes a milestone in this process. Over the years since then, the government has taken additional measures, but the social protest that broke out in 2011 accelerated its activity.¹⁴ In addition, there has been a marked change recently in consumer behavior, due among other things to technological improvements that enable price comparisons and purchasing goods on Israeli and global retail websites.¹⁵

The increase in competition and openness is apparently lowering prices in the economy and contributing to the fact that inflation is lower than the target. However, the Bank of Israel's accommodative policy does not contradict the measures intended to lower the cost of living. First, the monetary accommodation offsets the price reductions only partially, and the Bank of Israel does not have to retroactively correct deviations from the inflation target. Second, in any case, the policy the Bank of Israel uses to achieve the inflation target affects has a long-term effect only on nominal scales.¹⁶ However, the increasing competition is expected to be reflected in real developments in the medium-to-long term: prices that are high due to inefficiency and a lack of competition will decline relative to other prices; workers from inefficient industries will be diverted to other industries; productivity will increase in industries that are exposed to competition; and the average real wage will increase, which will moderate the sense of "cost of living".

The foregoing description observes three processes. Accordingly, we will examine three questions: (1) Is the increase in the competition and openness in various markets reflected in a change in the ratio between prices in those markets and prices in other markets? (2) Is the increase in competition and openness in various markets reflected in an increase in the relative productivity? (3) Are workers in industries that are exposed to increasing competition diverted to other industries?

Relative prices: The Bank of Israel Annual Report for 2014 showed that the prices of some consumer goods in Israel were higher than in other countries. An up-to-date examination shows similar findings, but there are signs of changes that are in line

¹⁴ Even prior to the protests, in 2010, the government announced a program of structural change in the cellular communication industry. Since the protest, many other measures have been taken, including further changes in the communication industry (for instance in the area of multi-channel television), separating the ownership of financial companies from the ownership of nonfinancial companies, removing barriers to the personal import of consumer goods, lowering air travel prices through "open skies" reforms, lowering the prices for public transit, increasing competition in the food industry, preparing a five-year plan to reduce regulation, taking actions to lower the prices of financial services, and removing import taxes on consumer durables.

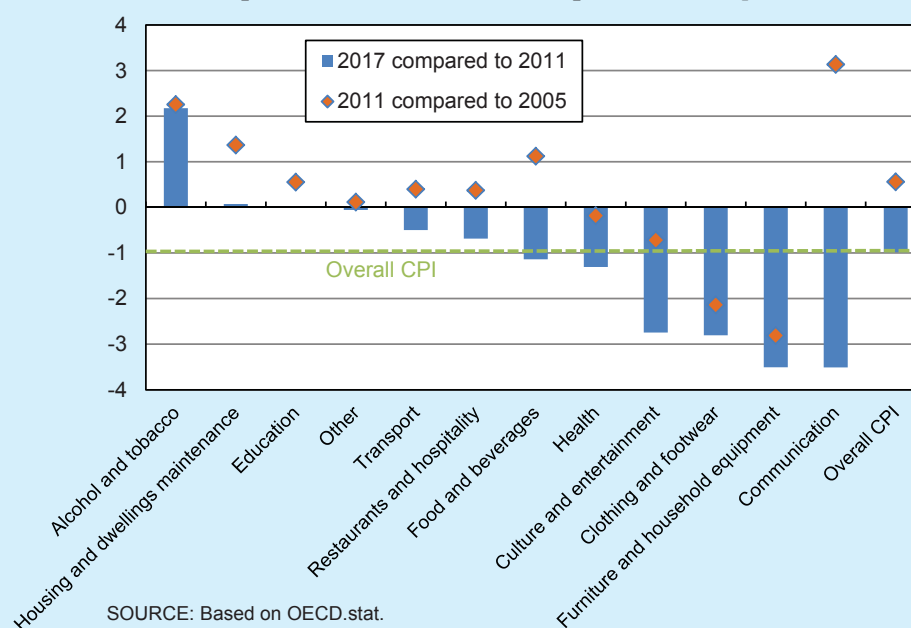
¹⁵ See more discussion in Box 3.2, and in the Bank of Israel Annual Report for 2016, Chapter 3.

¹⁶ According to the money supply theory, a change of X percent in the money supply will increase prices and nominal wages by X percent in the long run.

with the efforts to lower the cost of living. Brand et al. (2017)¹⁷ showed that there is a marked decline in prices in product groups where there were structural changes. In order to rule out the possibility that these differences are the result of other factors, we used a regression to calculate the price changes in each group between 2011 and 2017, net of macroeconomic effects (Figure 1.5; the calculation method is presented in the shaded box). The residual difference in the development of prices in each group reflects only the unique domestic factors that acted to change the price in each group on its own. It does not reflect the global price change in each group, the effect of the exchange rate, or the effect of domestic macroeconomic activity.

The unique changes may explain a number of prominent price declines (declines that exceeded the decline in the overall CPI). Communication prices declined significantly between 2011 and 2017, after increasing in the previous period, which led the list of price declines and was apparently the result of reforms enacted in the industry. Clothing and footwear prices and prices of furniture and household equipment declined significantly between 2011 and 2017, and between 2005 and 2011. This decline accelerated slightly in recent years, perhaps because consumers increased their use of domestic and foreign websites to compare prices and purchase goods and services.¹⁸ The turnaround in food and beverage prices—which increased until 2011 and have since declined—

Figure 1.5
Annual Rate of Change in the Consumer Price Index, Excluding Macroeconomic Effects, 2017 Compared to 2011, and 2011 Compared to 2005 (percent)



¹⁷ G. Brand, A. Weiss and A. Zimring, "A Macroeconomic Picture of the Economy in 2017", in *The State of the Nation Report 2017*, Taub Center for Social Policy Studies in Israel, December 2017.

¹⁸ Box 3.2 deals with how the increase in Internet purchases affects the price of goods in Israel and a number of selected countries.

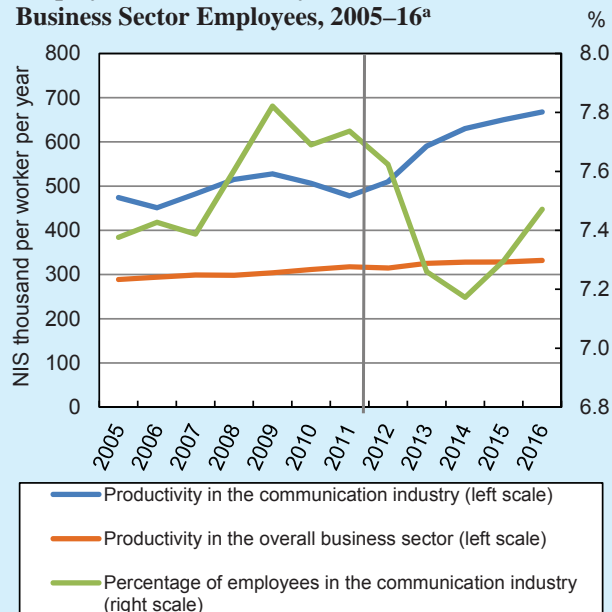
is perhaps connected to the social protests in the summer of 2011, changes in consumer behavior, or competition-supporting measures implemented following the Kedmi Committee. For a number of other recent price declines it is difficult to provide a tangible explanation, but it seems that changes in relative prices are generally in line with changes in the various markets.

Relative productivity and employment: The increase in competition should reduce the profitability of firms that had enjoyed market power. The Bank of Israel Annual Report for 2016

found that among some public companies in the consumer goods field, there was a slight decline in gross profitability compared with 2011. An updated examination showed that this decline remained in place. The negative impact to profitability is expected to create pressure on the companies to streamline through an adjustment of the number of workers and/or technological improvements.

There have been a series of reforms in the communication industry since 2011, chiefly the integration of additional competitors—in the cellular, Internet and television fields—and as Figure 1.5 shows, prices have declined since them to a particularly large extent. In addition, we found that the profitability of wholesalers in the field declined slightly.¹⁹ Figure 1.6 shows the productivity in the communication industry alongside the productivity in the business sector as a whole. Until 2011, the two figures developed along similar lines, but since then, the former has increased rapidly, while the latter has increased moderately. The increase in relative productivity may be linked to reforms that were enacted in the industry, but also to accelerated technological improvements in the field. The increase in productivity was accompanied by a sharp decline in the rate of employed persons in the industry beginning in 2012, after it increased until then. However, it turns out that this was a temporary decline, since the

Figure 1.6
Productivity in the Information and Communication Industry and in the Overall Business Sector, and Employees in the Industry as a Share of Total Business Sector Employees, 2005–16^a



^a The grey line represents the reform in the cellular communications industry. The government announced it in July 2010, and approved it in December of that year as part of the Economic Arrangements Law.
SOURCE: Based on Central Bureau of Statistics.

¹⁹ Gross profitability declined from 19.5 percent in 2011 to 17 percent in 2017.

rate of employed persons began to increase again in 2014, in accordance with the long-term trend in the industry—increasing its share of total activity.²⁰

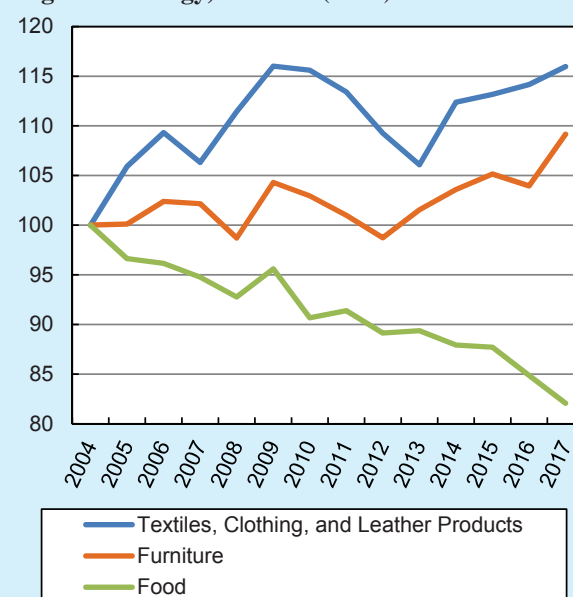
Figure 1.7 shows the relative productivity in the food, furniture, and clothing and footwear industries. Regarding the first, we found that relative prices declined in recent years, and regarding the other two we found a more prolonged decline (Figure 1.5). In these industries, relative productivity also increased continuously. The increase began as a result of the program to expose the economy to imports,

which was implemented in the mid-1990s, and it has been particularly prominent in recent years. In these industries as well, the increase in relative productivity has been accompanied by a decline in employment (not shown), but in contrast with the developments in the communication industry, the decline in employment is continuous in the traditional manufacturing industries that are exposed to imports. This reflects a process in which a few companies—that succeed in manufacturing through innovative technologies and with high productivity—survive.

In contrast with the developments in the communication, furniture, and clothing and footwear industries, we find that relative productivity in the food industry declined in recent years, and the decline was accompanied by an increase in the rate of employees. Even so, and despite the decline in relative prices of the industry's consumer products, the profitability of the food manufacturing companies remains in

²⁰ The information industry is included in the graph because of limited data. More detailed data are available for the years 2012–2014, and these support the assessment that communication services led the developments shown in the Figure: a lower share of employees in the communication services field as a share of total employees in the information and communications industry, from 27 percent in 2012 to 17 percent in 2014, because the number of employees in communication services declined from 45,000 to 28,000 during those two years. The ratio between productivity in the communication services industry and productivity in the information and communication industry as a whole remained the same between 2012 and 2014 in current prices. If we take into account the sharp decline in communication prices, we find that the relative productivity in the communication services industry in fixed prices increased significantly during that period.

Figure 1.7
Productivity in Selected Manufacturing Industries Relative to Productivity in Manufacturing (excl. High Technology) 2004–17 (index)



SOURCE: Based on Central Bureau of Statistics.

The decline in relative prices of some goods and services, alongside the increase in productivity in some industries, reflect government efforts to lower the cost of living.

place at this stage. The price declines were apparently absorbed by wholesalers, since their gross productivity declined from 18 percent in 2011 to 14 percent in 2017.

Since domestic demand is high and demand from abroad increased, the adjustment process described above—a decline in employment in some of the industries—did not lead to greater unemployment. The job vacancy rate is at a record high, and workers who are forced out due to streamlining are quickly absorbed in new work places. However, a negative shock to demand may lead to an increase in unemployment in the medium term, both due to the shock itself, and due to the structural change. The speed of the adjustment of productivity and employment in the economy depends first and foremost on the skills of the individuals and on their ability to adjust themselves to the new reality. However, the government should also be prepared for this type of challenge. It must strengthen its active labor market policy, including in the area of professional training.

Calculating the estimates of unique changes in relative prices

As stated, our assessment is that there is a change in relative prices that derives from factors that are unique to each group. In order to test this assessment, we examined the contribution of the macroeconomic factors that affected the prices of goods and services in Israel and abroad. Thus, the residuals from the estimation of each group reflect the effect of the unobserved unique domestic factors in each group. We estimated 13 regression equations—one for the overall CPI and 12 for the goods and services groups—based on the data on Israel and on 31 other OECD countries between 2005 and 2017.

We used the identical equation estimation in all 12 groups:

$$\begin{aligned} \frac{\Delta P_{c,t}}{P_{c,t-1}} = & \alpha + \beta_1 \frac{\Delta E_{c,t,\dots,t-3}}{E_{c,t-1,\dots,t-4}} + \beta_2 D_{country_c} \\ & + \beta_3 \left(Country \times \frac{\Delta E_{c,t,\dots,t-3}}{E_{c,t-1,\dots,t-4}} \right) \\ & + \beta_4 Quarter_t + \beta_5 out_put_Gap_{c,t} + \varepsilon_{c,t} \end{aligned}$$

where the dependent variable in the estimations, $\frac{\Delta P_{c,t}}{P_{c,t-1}}$, is the rate of change in the price between each quarter and its predecessor in country a . α is an intercept that reflects the average of the price increase that is common to all countries throughout the estimation period, net of the effects of the explanatory variables. The explanatory variables are the change in the dollar exchange rate in each country relative to its currency, $\frac{\Delta E_{c,t,\dots,t-3}}{E_{c,t-1,\dots,t-4}}$, in quarter t and in each of the three preceding quarters¹; $D_{country_c}$ and is a

¹ We measured the pass-through in Israel and in the other countries using the dollar exchange rate, since it seems that its importance to understanding the development of prices in the short term is greater than the importance of the basket of currencies. This is because 71 percent of import transactions are carried out in the US dollar, which is a higher rate than its weight in the basket of currencies. See *Developments and Trends in Israeli Exports, summary Report for the First Half of 2017*, Israel Export Institute. The report is based on data from the Central Bureau of Statistics. See also evidence of the fact that the dollar is important in a short-term analysis of the volume and prices of world trade: C. Casas, F. J. Diez, G. Gopinath, and P. O. Gourinchas (2016), “Dominant Currency Paradigm”, National Bureau of Economic Research No. w22943.

dummy variable for each country. The interactions between it and the changes in the exchange rate (contemporaneous and with three lags) make it possible to identify the pass-through from the exchange rate to prices in each country separately. The effect of the exchange rate on the prices of each group in Israel is equal to the sum of the coefficients of all its lags on their own and of the interaction coefficients between the exchange rate and the dummy variable for Israel. $Quarter_t$ is a dummy variable for each quarter, and identifies the change in prices that is common to all countries in each period; $out_put_Gap_{c,t}$ is the typical output gap for each country in a given period. Its inclusion in separate equations for each group makes it possible to identify how the effect of activity on prices differs between groups. $\epsilon_{c,t}$ is the unexplained residual of the regression, and it reflects changes that the aforementioned explanatory variables do not explain. It is therefore also deducted from the average change in the price of each group during the entire sample period.² The residual is unique for each product group in every country and at every given period.

Identifying the causal connection between the various explanatory variables and the change in prices (the dependent variable) depends mainly on the assumption that the price of each group does not influence the macroeconomic variables in the estimation equations, but is only influenced by them. This assumption is reasonable because in the mechanism that is at the foundation of purchasing power parity, the prices generally affect the exchange rate in the long term and not in the short term, the range on which the current estimation concentrates. Moreover, it is reasonable to assume that the prices of each group separately influence the general exchange rate of the economy less than the exchange rate influences the prices of the various groups.

The columns in Figure 5a (for the period 2011–2017) show the total

$$\beta_2 D_{Israel} + \epsilon_{Israel,2017-2011}$$

in each of the groups. With the assumptions detailed above, this sum reflects the development of prices of each group in Israel during the period, including the average change in the group's prices throughout the sample period, but minus the effect of macroeconomic changes.

The results of the regressions are shown in Table 1. The pass-through from the exchange rate to prices is positive in an examination based on the CPI and in 10 of the 12 price groups. The pass-through to the overall CPI is similar to the pass-through obtained in other examinations made by the Bank of Israel. The pass-through coefficients from the exchange rate to housing prices are robust to a shortening of the estimation period to 2008–2017, a period in which the tendency to index rental contracts to the dollar declined greatly, although the regressions for later periods generate declining pass-through coefficients. The output gap has a positive effect in most of the price groups (as expected), and is not different from 0 in any statistically significant way in the other groups.

² The residual is deducted from the average change in the price of each group because the estimations for each country include dummy variables that reflect the average change in each country during each sample period.

Table 1
Estimating the factors that affect prices in the product groups, Israel and the other OECD countries (excluding the US), 2004–17

	1	2	3	4	5	6
	Overall CPI	Food and beverages	Alcohol and tobacco	Clothing and footwear	Housing and household maintenance	Equipment and furnishings
NIS/\$ exchange rate's effect on Israel ^a	0.115872***	0.03481	0.1965	-0.00549	0.26742***	0.09422*
Output gap ^b	0.000394*** (0.0000653)	0.000182 (0.000152)	0.000584*** (0.000121)	0.000558** (0.000216)	0.000870** (0.000334)	0.000496*** (0.0000931)
Dummy variable for Israel	-0.000440*** (0.000141)	0.000014 (0.000399)	0.00587*** (0.000820)	-0.00597*** (0.000461)	0.00161*** (0.000426)	-0.00758*** (0.000386)
Fixed	0.00256** (0.000980)	0.00445** (0.00194)	0.00445 (0.00423)	-0.0504*** (0.0108)	0.00592*** (0.00164)	-0.00354*** (0.00126)
Dummy variable for each country (FE)	Yes	Yes	Yes	Yes	Yes	Yes
Dummy variable for each period	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,316	1,316	1,316	1,316	1,316	1,316
R-squared	0.573	0.468	0.220	0.618	0.396	0.514
	7	8	9	10	11	12
	Health	Transport	Communication	Culture	Education	Hospitality and food
NIS/\$ exchange rate's effect on Israel ^a	0.061**	0.35737***	-0.12599***	-0.0296	-0.0902	-0.1777***
Output gap ^b	0.000293* (0.000165)	0.000171 (0.000112)	-0.000246 (0.000324)	0.000441*** (0.000126)	0.000123 (0.000343)	0.000510*** (0.000110)
Dummy variable for Israel	-0.00191*** (0.000232)	-0.000496 (0.000356)	0.000346 (0.000521)	-0.00371*** (0.000271)	0.000450 (0.000517)	0.000458** (0.000199)
Fixed	0.00138 (0.00222)	0.00823*** (0.00249)	-0.00693*** (0.00182)	0.0125*** (0.00322)	-0.00183 (0.00281)	0.0109*** (0.00155)
Dummy variable for each country (FE)	Yes	Yes	Yes	Yes	Yes	Yes
Dummy variable for each period	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,316	1,316	1,316	1,316	1,265	1,316
R-squared	0.267	0.789	0.199	0.313	0.191	0.384

^a The effect of the NIS/\$ exchange rate on Israel is equal to the sum of the coefficients of all exchange rate lags on their own and of the interaction coefficients between the exchange rate and the dummy variable for Israel.

^b The output gap is negative when there is low utilization of the means of production.

The numbers in parentheses are the standard deviation equalized through the cluster method at the state level.

*** p<0.01, ** p<0.05, * p<0.1

c. The development of exports

Israeli exports grew more rapidly in 2017 than in the previous year, because world trade expanded thanks to improving trends in the global economy. The increase was led by an accelerated increase in services exports. In contrast, goods exports improved only slightly after declining in the previous year. The standstill in goods exports is, to a certain extent, tied to weakness in the pharmaceuticals industry and in the electronic components industry—which account for about 10 percent of Israeli goods exports.

However, from a broader perspective it seems that goods exports moderated in recent years due to three interconnected macroeconomic factors. First, similar to other advanced economies, the Israeli economy is undergoing a process where the services industries are increasing their share of economic activity at the expense of the manufacturing industries. This process has, to a large extent, passed over exports until the beginning of the current decade, but there were already signs of the structural change in this sector as well, and the chapter dealing with the balance of payments goes into greater detail.

Second, in 2009, the shekel began to appreciate in real terms, to a large extent because the state of the Israeli economy was better than that of other advanced economies, and the increase in services exports may itself be among the causes of this. However, the appreciation is acting to slightly offset the success of services exports, particularly through a negative impact on the competitive ability of other industries. Box 2.1 of the Bank of Israel Annual Report for 2016 presented indications that the manufacturing industries are more vulnerable to appreciation than the services industries. The appreciation is forcing companies with low profit margins to streamline or to cease their operations, and if it is derived from fundamental factors, it contributes to growth because it accelerates the diversion of activity to areas where the economy has greater value added.

Finally, there is a limitation of professional workers in the Israeli economy, particularly in the technology fields. In the software and computers field, the job vacancy rate is very high, and wages are increasing rapidly.²¹ The increase in demand for these workers is more rapid than the increase in supply, and since the value added in the services industries is higher than in the production industries, they win the competition for workers. The real appreciation, combined with the moderate increase in the supply of professional workers, therefore accelerates the process in which export activity is moving from the goods industries to the services industries.

Figure 1.8 supports the argument that the difficulty in recruiting professional workers is restricting activity in the export sector. The Figure shows an index of the quality of human capital in total exports. In order to build the index, we took the average score of workers in every export industry in the PIAAC test (2014), and multiplied it by the weight of the Israeli export industry at each point in time between 2004 and 2017.

²¹ See more discussion in Chapter 2 of this report, and in Chapters 1 and 5 of the Annual Report for 2016.

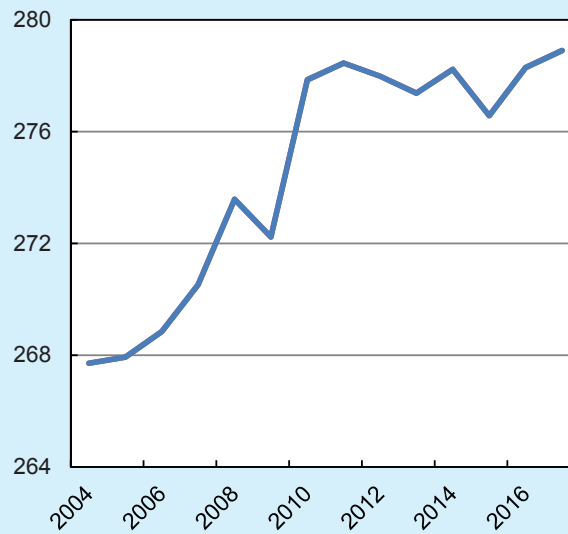
The real appreciation of the shekel and the moderate increase in the supply of professional workers are accelerating the process by which export activity is moving from the goods industries to the services industries.

Due to data limitations, we were forced to assume that the quality of workers from the standpoint of basic skills reflects the quality of the worker in general, and that it is fixed in each industry (the PIAAC survey was conducted at one point in time—2014). We therefore obtain an increase in average quality only if the industries with activity based on relatively high quality increased their share of exports. The Figure shows that the index increased until 2012, because the advanced export industries (goods and services) increased their share until then at the expense of more traditional

manufacturing industries (Figure 1.9). This reflects an increase in specialization in higher quality goods and services. However, from 2012, the increase in the index has been halted, because the export of advanced services has increased its share at the expense of high technology manufacturing industries (and the average quality of human capital is similar in both industries).

Competition therefore diverts economic activity to industries with high value added, and this is a welcome development. However, the analysis presented above also indicates a number of lessons concerning policy. First, a larger supply of workers in the technology professions may have enabled high tech manufacturing to continue expanding to some extent, despite the accelerated increase in services (see Chapter 7). The implementation of the recommendations formulated by the interministerial team led by Eugene Kandel (2012) could help increase the flow of workers to the technology industries. Second, the increasing specialization of the economy in the technological services industries may, in the short-to-medium term, have a negative impact on workers that do not have the necessary skills for such activity. Manufacturing workers may encounter unemployment or reintegration into work at a lower wage in the trade and services industries. Israel needs a policy to both quantitatively and qualitatively strengthen the professional training system, inter alia because it may help soften the structural change and maximize its benefit. Finally, in order to increase

Figure 1.8
Index of the Quality of Human Capital in the Export Industries^a, 2004–17 (average scores)



^a The average score achieved by workers in each export industry on the PIAAC literacy and numeracy tests (2014), multiplied by the industry's share of Israeli exports at each time point between 2004 and 2017.

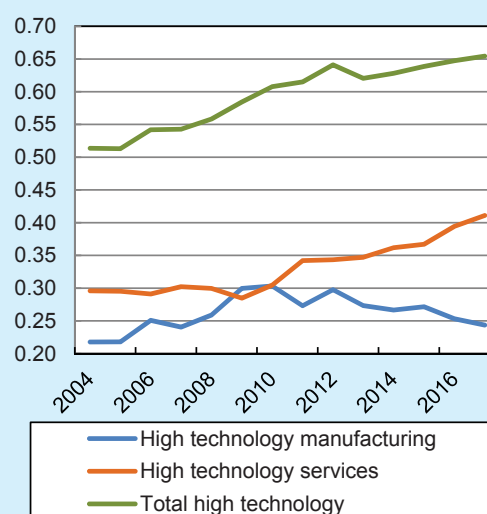
SOURCE: Based on Central Bureau of Statistics.

The speed with which productivity and employment are adjusting to structural changes depends on the ability of individuals to adjust themselves to the new reality, and on government policy in the area of human capital.

In order to speed up increase in the number of workers that are qualified for the technological professions, the skills of most students in the elementary and secondary education systems must be maximized.

the growth rate of workers with high human capital, the skills of most students in the elementary and secondary education system must be maximized, thereby expanding the number of those fit for studies in technological fields in the higher education system. The next section deals with policy measures that may help in this.

Figure 1.9
High Technology as a Share of Israel's Total Exports, 2004–17



^a High technology manufacturing includes the electronics, pharmaceuticals, and transport vehicle industries. The Central Bureau of Statistics official abstract includes only part of the transport vehicle industry, but it is included here as one bloc due to data limitations.

SOURCE: Based on Central Bureau of Statistics.

5. SOCIOECONOMIC ISSUES IN GOVERNMENT POLICY

Lowering the tax burden compared with increasing civilian expenditure: Civilian expenditure as a share of GDP increased in 2017, continuing the slight increase that was recorded in 2016. These increases cut off the downward trend that has accompanied the economy since the beginning of the 2000s. Since the increase was actually accompanied by a decline in statutory tax rates, it is doubtful whether it will persist.

The policy intended to lower the tax burden and government expenditure helped to extract the economy from the economic crisis at the beginning of the 2000s (Strawczynski and Flug, 2007)²², and was necessary in view of the high levels of debt and public expenditure at that time.²³ The economic literature shows that there are economic advantages to a reduction in taxes, but there is no consensus as to the extent of its effect. Romer and Romer (2010)²⁴ found that lowering taxes by 1

²² K. Flug and M. Strawczynski (2007), "Persistent Growth Episodes and Macroeconomic Policy Performance in Israel", Discussion Papers Series 2007.08, Bank of Israel Research Department.

²³ The necessity of these measures is discussed in depth in the Bank of Israel Annual Report for 2004.

²⁴ Christina D. Romer, and David H. Romer (2010), "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks." *American Economic Review* 100(3): 763–801.

percent contributed about 3 percent to the GDP level in the US between 1976 and 2007, while Blanchard and Perotti (2002)²⁵ found that a similar reduction contributed about 1 percent between 1946 and 1997. In Israel, Igdalov et al. (2017) found that the cumulative reduction in tax rates for salaried individuals between 2003 and 2009 led to a negligible increase of 1.1 percent in the gross wages reported in the business sector.²⁶

So there are economic advantages to lowering taxes, but the benefit it brings also depends on the type of expenditures the government cuts in parallel. To illustrate, Hanushek and Kimko (2000)²⁷ found a strong and stable causal connection between growth and basic skills in the labor force. In a later study, Hanushek et al. (2014)²⁸ found a link between the relative wages and quality of teachers, and between teacher quality and student achievement. An empirical examination carried out by the International Monetary Fund (2014)²⁹ showed that if investment in infrastructure is increased by 1 percent of GDP per year, the long-term GDP level increases by 1.5 percent, provided that the investment is chosen carefully and implemented efficiently. The IMF also found that if expenditure on active labor market policy is increased by 0.1 percent of GDP per year, the GDP level increases by about 0.35 percentage points.³⁰ Since the tax burden in Israel is low and defense expenditure is high, civilian expenditure—inter alia on the growth-supporting items that we mentioned—is among the lowest in the advanced economies (see Figure 6.2). Therefore, a further reduction in the tax burden and a parallel cut in expenditures may in the end have a negative impact on growth if political constraints prevent the government from maintaining growth-enhancing items.

Inequality: It seems that the main economic benefit of the policy intended to minimize the government’s involvement in income distribution is due to the reduction in benefit payments and the increase in the retirement age, since alongside long-term

Tax reductions have economic advantages, but they may have a negative impact on growth if the government cuts expenditure items that make a greater contribution to growth.

²⁵ Olivier Blanchard and Roberto Perotti (2002), “An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output.” *The Quarterly Journal of Economics* 117(4): 1329–1368.

²⁶ S. Igdalov, R. Frish and N. Zussman (2017), “The Wage Response to a Reduction in Income Tax Rates: The 2003–2009 Tax Reform in Israel”, Discussion Papers Series 2017.14, Bank of Israel Research Department (in Hebrew). It is possible, for instance, that employees worked more hours in response to the tax reduction, thereby increasing their gross wages. The quantitative result in the paper is obtained on the assumption that if the supply of labor actually did grow, then the stock of physical capital also grew accordingly.

²⁷ Eric A. Hanushek and Dennis D. Kimko (2000), “Schooling, Labor-Force Quality, and the Growth of Nations”, *American Economic Review* 90(5): 1184–1208.

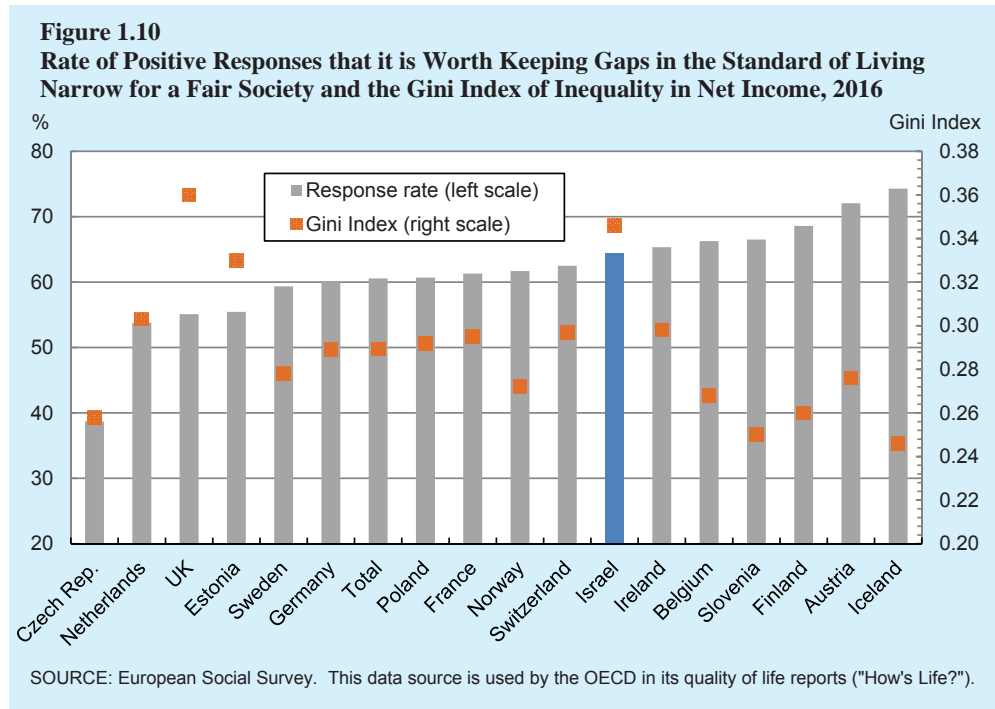
²⁸ Eric A. Hanushek, Mark Piopiunik and Simon Wiederhold (2014), “The Value of Smarter Teachers: International Evidence on Teacher Cognitive Skills and Student Performance”, National Bureau of Economic Research, no. w20727.

²⁹ International Monetary Fund (2014), “Is It Time for an Infrastructure Push? The Macroeconomic Effects of Public Investment”, *World Economic Outlook*, October 2014, Chapter 3.

³⁰ International Monetary Fund (2016), “Time for a Supply-Side Boost? Macroeconomic Effects of Labor and Product Market Reforms in Advanced Economies”, *World Economic Outlook*, April 2016, Chapter 3.

The incidence of poverty declined in recent years to levels seen at the end of the 1990s, thanks to government measures to increase employment. However, it remains higher than in most OECD countries.

social processes, these measures contributed to an increase in the employment rate.³¹ That increase, for its part, reduced economic inequality, with poverty and inequality in net income declining in recent years to levels similar to those seen at the end of the 1990s despite the sharp reduction in government involvement (see Chapter 8). However, both then and now, inequality in Israel is higher than in most OECD countries, and it is expected that the employment rate will not continue increasing without policy measures to integrate ultra-Orthodox men and Arab women into the labor force.

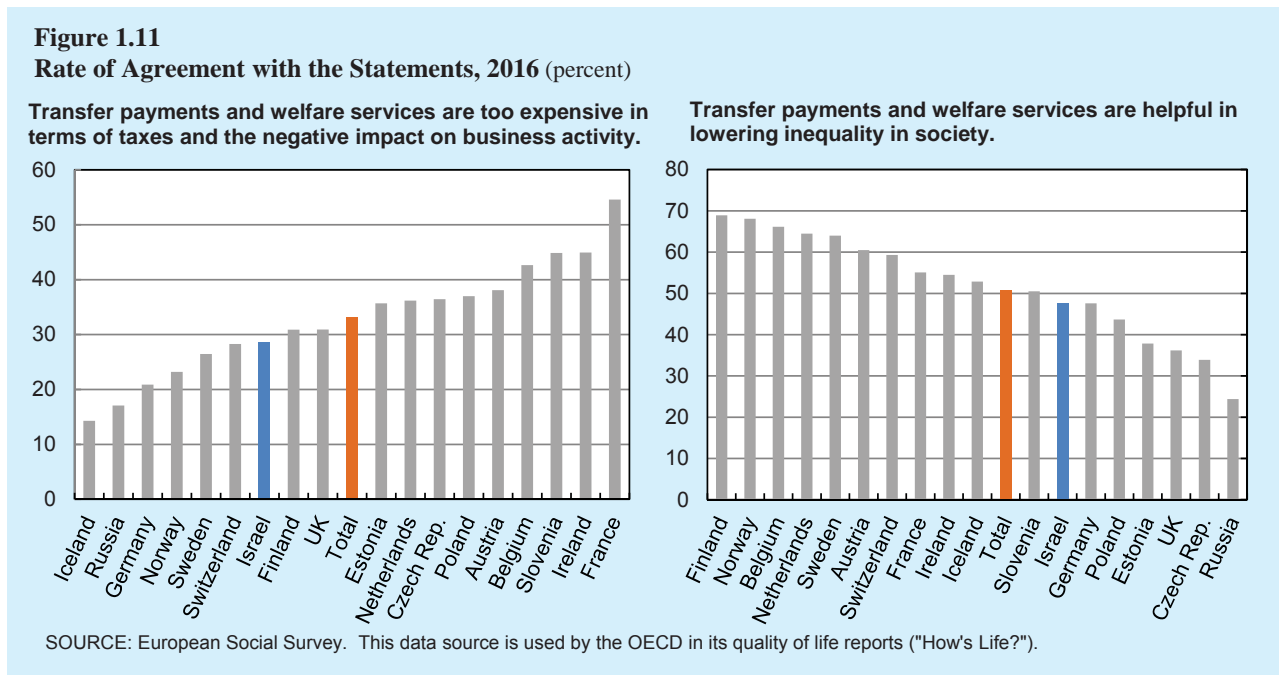


We examined the public’s positions concerning inequality based on a survey used by the OECD. As Figure 1.10 shows, 65 percent of Israeli respondents believe that low inequality is important in a fair society. This rate is higher than the average in Europe, and similar to the rate in countries that are characterized by low levels of inequality.³² Only a small percentage of Israelis believe that welfare policy is too expensive in terms of taxes (the left side of Figure 1.11), perhaps because the tax burden in Israel is low compared with the countries in the sample. The tax burden may actually reflect the public’s preferences, since only a small portion of the public

³¹ Bank of Israel (2017), “The Composition of Those Joining the Labor Market in the First Decades of the Century”, in *Fiscal Survey and Selected Research Analyses* 142 (June): 42–49.

³² The average value of the Gini index is relatively low in countries shown by the survey to have a high preference for equality (Iceland, Austria, Finland, Slovenia, Belgium and Ireland)—0.265 compared with 0.3 in the sample as a whole.

believes that benefit payments and welfare services are efficient in reducing inequality (the right side of Figure 1.11).³³



The government can efficiently reduce inequality in net income without negatively impacting its achievements in employment, and even increasing those achievements. This can be done through a series of measures to improve the earning capacity of workers and through intervention in income distribution in a manner that does not reduce the incentives to work. The 2019 budget includes such measures: a program to improve the quality of technological colleges, and a change in the incentive structure in the earned income tax credit (“negative income tax”). However, these measures are not expected to materially change the situation, and additional measures are required, such as a more significant increase in the earned income tax credit and actions to improve human capital in the short and long term.

The government can reduce inequality without negatively impacting its achievements in employment, and thereby act in accordance with public preferences.

The efficiency of government services: Chapter 1 and Box 6.2 of the Bank of Israel Annual Report for 2016 dealt with the government’s difficulty in efficiently putting infrastructure investment programs into action. In 2017, the government increased its efforts to improve coordination between the various projects and to maximize the potential of projects financed through public-private partnerships

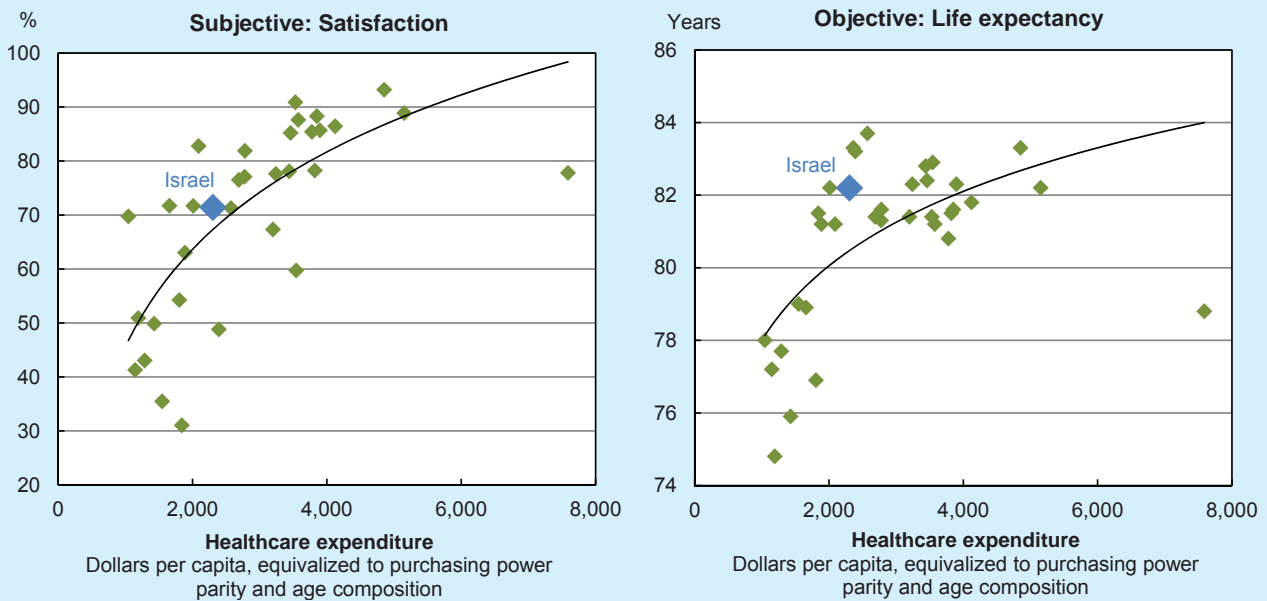
³³ It is interesting to note that in parallel, only a small fraction of Israelis believe that benefit payments encourage laziness.

(PPP).^{34,35} Infrastructure services in Israel do require improvement, as illustrated by the discussion in Box 2.1 of the inferiority of public transit in the metropolitan areas. Improved government efficiency may reduce the need to raise taxes in order to achieve such goals. The advantages involved were mentioned above.

It is not simple to assess the efficiency of government activities, since public sector output is calculated based on wage payments, which are set by the government. Below, we will try to assess the extent to which the government has succeeded in improving life expectancy, satisfaction with healthcare services, and measurable scholastic achievements, compared with other countries and taking into account the volume of resources allocated to these fields.

The right side of Figure 1.12 shows the link between public healthcare expenditure (per capita, equalized to the age composition) and life expectancy in the country. A country's position relative to the trendline may serve as an indication of the efficiency

Figure 1.12
Healthcare Expenditure and Healthcare Quality Index, Israel and Other OECD Countries, 2015



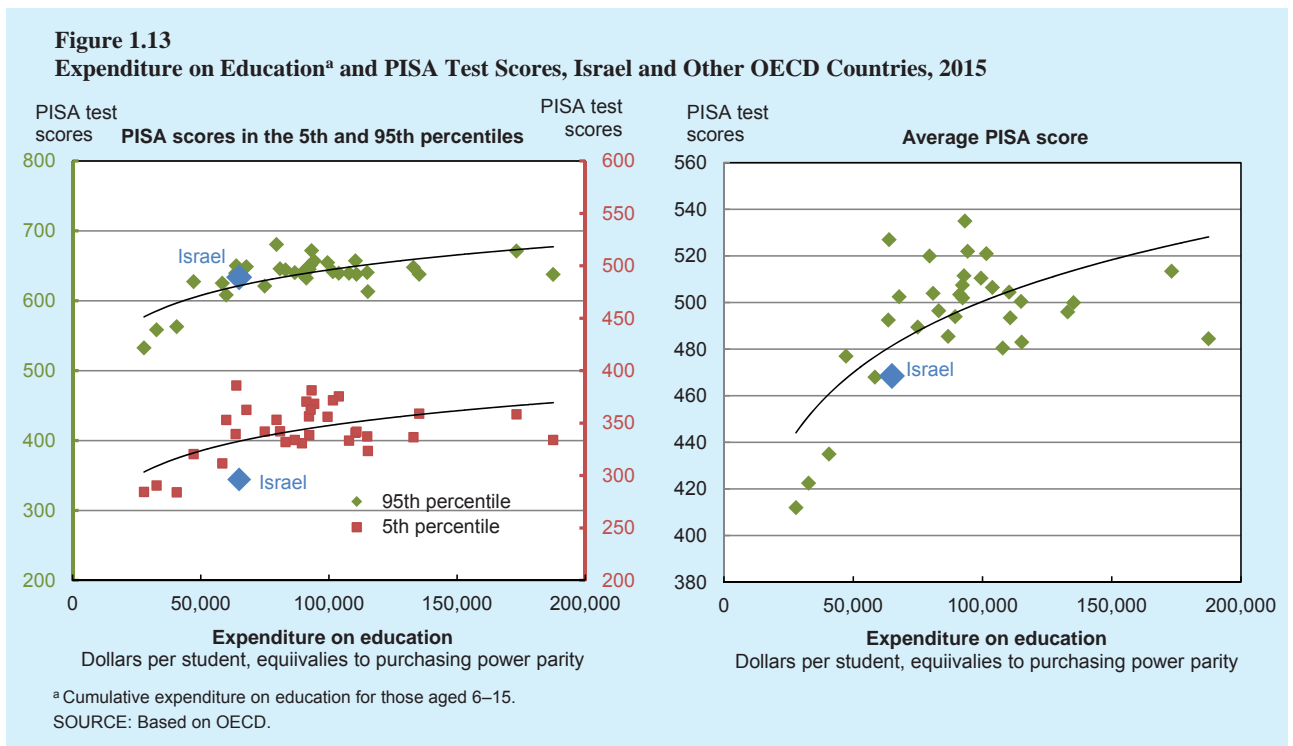
SOURCE: Based on L. Ahdut, G. Ben-Nun, and E. Politzer (2016), "Profile of Healthcare Expenditure by Age in Israel and the OECD", Policy Studies Series, Van Leer Jerusalem Institute; and OECD.

³⁴ A long-term public investment project in which a private entity takes significant risks and management responsibilities, and payment depends on results.

³⁵ Government decision 3012 from September 3, 2017. The government established a team to accompany and monitor the multi-year infrastructure development program, led by the Director General of the Prime Minister's Office.

of its healthcare system.³⁶ Up to a certain point, there is a positive correlation between expenditure and life expectancy. Israel's location slightly above the regression line shows that life expectancy in Israel is higher than forecast according to the level of expenditure: Expenditure as a share of GDP is relatively low, and life expectancy is relatively high. However, it is possible that life expectancy in Israel is high for reasons that have nothing to do with the system's efficiency, such as genetic and/or environmental reasons. The left side of the Figure shows that satisfaction with the Israeli healthcare system is similar to the satisfaction forecast based on the regression line, but lower than the level in most countries. We can derive from this that the system's results are sufficient taking its relatively low budget into account, but also that the allocation of additional resources has the potential to improve the situation.³⁷

The healthcare system's results are good considering that its budget is relatively low.



³⁶ Government efficiency can also be tested by the extent of its success in narrowing the life expectancy gap between those with higher education and those without. Israel was found to be efficient according to this index as well. Citizens with no higher education generally have a less healthy lifestyle, and have less access to private healthcare and to information on maintaining health. See, for instance, Mary A. Silles (2009), “The Causal Effect of Education on Health: Evidence from the United Kingdom”, *Economics of Education Review*, 28(1): 122–128.

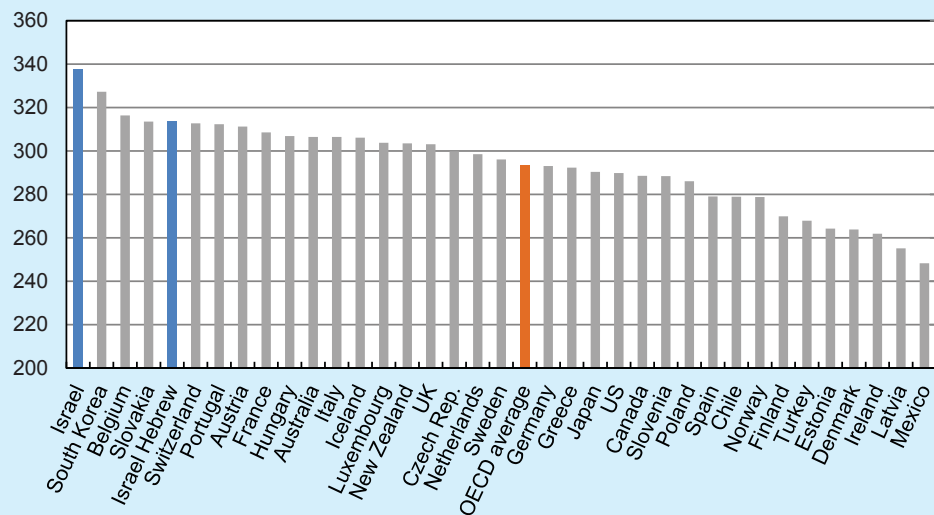
³⁷ An analysis conducted by the Bank of Israel found that the low investment over the years led to a lower stock of capital in the healthcare system than in other countries, which is reflected, for instance, in the low number of general hospitalization beds and scanning instruments. The intensive use of the existing infrastructure partly compensates for the lack, and helps the Israeli healthcare system achieve good results with low expenditures, but it has a negative impact on the level of service to the patient, since it leads to overcrowding in the hospital wards, unconventional hours of service, and long waits. See Bank of Israel (2014), *Recent Economic Developments*, 138.

Student achievement in Israel is just slightly below what is expected according to the low level of expenditure.

The education system allocates too few resources to affirmative action.

The right side of Figure 1.13 shows the link between the amount spent by various countries on education per student and the students' achievements on the PISA test. The Figure shows that there is a positive correlation between expenditure and achievements. Students in Israel have low achievements, but they are almost identical with the achievements predicted by expenditure. The left side of Figure 1.13 shows the link between total expenditure on education per student and the achievements of the students in the 5th and 95th achievement percentiles in each country. The Figure shows that Israeli students in the 95th percentile have reasonable achievements taking total expenditure into account, while students in the 5th percentile have low achievements. The public education system is particularly important to students from weak backgrounds. When the quality of the system is high, it could compensate for the students' socioeconomic starting point. Therefore, the finding regarding students from the 5th percentile may show that the public education system in Israel is not efficiently utilizing the resources available to it, or that it allocates insufficient resources to affirmative action needs.

Figure 1.14
The Gap in PISA Test Achievements Between the 95th and 5th Percentiles, Israel, Hebrew Speakers in Israel, and Other OECD Countries, 2015 (points)



SOURCE: Based on the OECD's PISA test. Ultra-Orthodox boys are not included in the group of Hebrew speakers presented here because they do not take the PISA tests.

Inequality in educational achievement is high, particularly within the group of Hebrew-speakers.

Challenges in the education system: In Israel, there are large gaps in scholastic achievement. One hypothesis holds that these gaps mainly reflect the socioeconomic gaps between the Jewish and Arab sectors. However, Figure 1.14 shows that inequality is not only high between the sectors, but that it is also high within the group of Hebrew-speakers. The strong students in the Jewish sector excel relative to their peers in

other countries, while students at the bottom of the distribution have particularly low achievements. There are relatively large gaps even within the state and state-religious school systems (not shown), even though these population groups are homogenous compared with the overall population in Israel and with the populations in many other countries.

In November 2014, the Ministry of Education announced a five-year plan³⁸ to narrow gaps in the system. The volume of teaching hours allocated to affirmative action increased in the first two years of the program, and the gap in hours that was to the detriment of the Arab sector was narrowed.³⁹ In terms of class size, it was decided in 2014 to lower the maximum number of students per class from 40 to 32, with affirmative action in accordance with the socioeconomic index of the school, but this decision was not implemented. Instead, it was decided that the maximum number of students would be lowered gradually to 34, without taking the socioeconomic index into account. Regarding the quality of teachers, the “New Horizon” and “Oz LeTmurah” reforms increased teachers’ wages significantly, and signs of improvement in teacher quality can also be seen.⁴⁰ However, teacher quality in localities from the lower socioeconomic clusters is significantly lower than in the stronger localities (Figure 1.15), even though the gap was recently narrowed due to improvement in the localities from lower socioeconomic clusters. Blass and Shavit (2017) examined all of the additions to the education budget between 2014 and 2016, and found that the two lowest quintiles accounted for about one-quarter of the additional expenditures—less than their share of the student population. The main reason for this apparently has to do with a turnaround that led to the cancellation of affirmative action in class size.

The quality of teachers in localities from low socioeconomic sectors is significantly lower than in stronger localities.

Policy recommendations in the field of education: The program to narrow gaps and promote equality is supposed to increase the share of distributed hours through a clear affirmative action formula. The program should contribute to a narrowing

³⁸ The program is detailed in the interministerial report entitled “The Program to Narrow Gaps and Promote Equality” (2014).

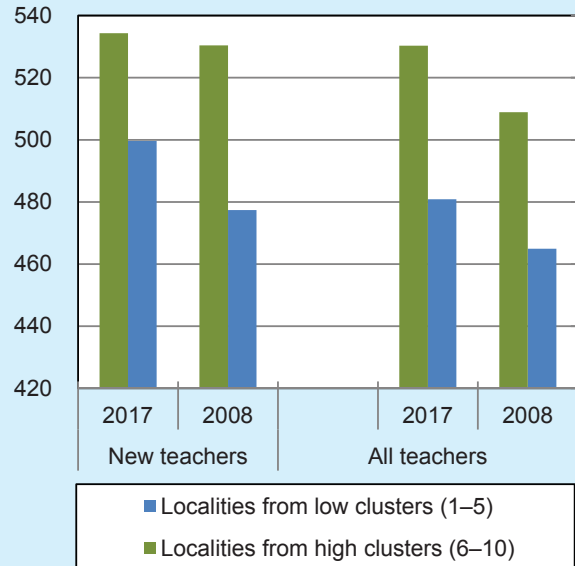
³⁹ Thus far, about one-third of the program has been implemented. In the 2011–12 school year (two years before implementation), the number of weekly hours per student in the two lowest quintiles was 2.03, while in the Arab sector it was 1.65 (a gap of 18.5 percent). In the 2015–16 school year, the number of hours in the Jewish sector was 2.11, and in the Arab sector it was 1.81 (a gap of 14 percent). These data are taken from the Ministry of Education’s budget transparency website, and do not take external budgetary sources into account. Jewish students from strong socioeconomic backgrounds benefit from additional hours paid for by the municipalities and parents; Jewish students from weaker backgrounds benefit from additional hours paid for by various non-profit organizations, and students from the Arab sector barely received any additional hours from sources outside the Ministry. See N. Blass, S. Tsur and N. Zussman (2010), “The Allocation of Teachers’ Working Hours in Primary Education, 2001–2009”, Discussion Papers Series 2010.18, Bank of Israel Research Department.

⁴⁰ The precise data regarding wages appear in R. Zilbershlag and D. Ma’agan, “Trends in Teachers’ Wages, 2003–2014”, press release published in Hebrew by the Central Bureau of Statistics in December 2016. The data on the quality of teachers appear in V. Kazhdan and D. Ma’agan, “The Psychometric Profile of Teachers, 2006–2017”, press release published in Hebrew by the Central Bureau of Statistics in August 2017.

of the achievement gaps⁴¹, particularly the gap to the detriment of students from the Arab sector, although it is not expected to close the existing gap in hours. It is recommended that action be taken to successfully implement the program, and even to expand it, while also strengthening the guidance and training as part of the program that is intended to ensure that the additional hours are used efficiently—the “Marom” program. All of this is with the aim of closing, once and for all, the gap that exists to the detriment of the Arab sector in the number of teaching hours and in their contribution to learning.

It is important to lower the number of students per class, particularly in classes with students from weaker socioeconomic backgrounds.⁴² However, there is doubt as to the extent of the benefit that can be derived from it^{43,44} within the existing teaching methods. The need for lowering the number of students is addressed by the one-on-

Figure 1.15
Average Score Achieved by Teachers on Psychometric Tests by Socioeconomic Cluster of the School's Locality, 2008 and 2017



SOURCE: Based on Central Bureau of Statistics.

⁴¹ Lavy (2012) examined the additional hours the schools received due to the implementation of the Shoshani outline for affirmative action. He found that it has a positive and statistically significant effect on achievements in mathematics, English and sciences, and a negligible and statistically insignificant effect on achievements in language studies:

Victor Lavy (2012), “Expanding School Resources and Increasing Time on Task: Effects of a Policy Experiment in Israel on Student Academic Achievement and Behavior”, National Bureau of Economic Research, no. w18369.

⁴² Unique teaching methods can be adopted in small classes, but it is unclear whether the education system is set up to maximize the possibilities of such classes. See R. Shafrir, Y. Shavit and K. Blank (2017), “Subtraction by Addition? On the Link between Class Size and Scholastic Achievement in Israel”, in Taub Center for Social Policy Studies in Israel, *State of the Nation Report, 2016*

⁴³ Joshua D. Angrist and Victor Lavy (1999), “Using Maimonides’ Rule to Estimate the Effect of Class Size on Scholastic Achievement”, *The Quarterly Journal of Economics* 114(2): 533–575; Joshua D. Angrist et al., (2017), “Maimonides Rule Redux”, National Bureau of Economic Research, no. w23486.

⁴⁴ Shafrir, Shavit and Blank (2017) did not find a statistically significant link between class size and scholastic achievement after statistical control for students’ previous achievements and parents’ education. A survey conducted by the Ministry of Education emphasized that smaller classes are beneficial only if the number of students declines to below 20, and mainly among students from weak socioeconomic backgrounds. See A. Asher (2014), “Class Size and Student-Teacher Ratio: Survey of International Policy and Research Findings”, Ministry of Education Chief Scientist’s Office.

one hour provided by the “New Horizon” reform, and it is expected that affirmative action measures in the number of hours and quality of teachers will generate a greater benefit relative to cost (see Appendix 1).

There is little affirmative action in the education system for the time being, and it exists only in terms of the number of hours. However, improvement in the quality of teachers is essential for improvement in the quality of the use of resources in schools with a weak socioeconomic background. It is therefore recommended that the quality of teachers in the education system be improved through actions to attract high-quality teachers to schools with a low socioeconomic background. For this purpose, remuneration should be improved—particularly starting pay—for teachers in these schools.⁴⁵ In addition, a teacher evaluation system should be promoted to help schools from weak backgrounds absorb better candidates and constantly maintain their existing high-quality teachers. Israel has not instituted such a process in a comprehensive way, and it is therefore impossible to assess its benefit through research.⁴⁶ However, a similar process is being studied in the US⁴⁷, where high-quality teachers—those that made a large contribution in the past to student grades—were given incentives to teach at schools with lower socioeconomic backgrounds through a grant amounting to 20 percent of their annual wage. The researchers found that the program contributed to students’ achievements more than lowering class size (with a similar budget).⁴⁸

It is recommended to improve the quality of the teachers working at schools with weak socioeconomic backgrounds by improving their remuneration, particularly their starting salaries.

The findings regarding students’ achievements in Israel are based on the output of measurements of the education system—basic skills like numeracy and literacy. However, the system does not fill an essential role only in providing these skills. It should also strengthen the ability to search for and analyze information, solve problems, and relate critically to issues. These qualities, and certainly interpersonal skills and values, are not measured well in international or other tests. Achieving the goals of education in broad terms, and in all layers of the population, will help Israel’s citizens meet the challenges posed by the rapid changes in our world.

⁴⁵ Rytov and Krill (2017) showed that there are gaps between veteran and new teachers that are anomalous by comparison with other countries. The McKinsey Report from 2007 shows that the starting wage is more important in attracting high-quality teachers than the pace of its growth over a career. The wage agreement signed in 2017 with the Secondary School Teachers Association acts to narrow the wage gaps between veteran and new teachers in secondary schools.

⁴⁶ It is therefore recommended to run the program partially, and to accompany it with research, before full operation.

⁴⁷ “Transfer Incentives for High-Performing Teachers: Final Results from a Multisite Randomized Experiment”, US Department of Education, 2013:

<https://ies.ed.gov/ncee/pubs/20144003/index./asp>

⁴⁸ The cost and benefit of lowering class size were calculated based on the findings of the “Tennessee STAR Class Size”.

Appendix 1
Policy measures in the area of education: Annual cost per class of an additional point in the average class score

Policy measure	Cost-benefit ratio in the original study	Assumptions that underline the move to uniform terms	Monetary cost per point in the score in uniform terms	Bibliographical source
Using grants to divert high-quality teachers	An annual grant of \$10,000, about 20 percent of the teacher's annual wage, generated 4–10 points on a grade scale of 1–100.	The annual wage in Israel is NIS 150,000. The measure generated the median of the reported effect, or 7 grade points.	NIS 4,286	"Transfer Incentives for High-Performing Teachers: Final Results from a Multisite Randomized Experiment", US Department of Education, 2013
Additional teaching hours for students from a weak background	Addition of one weekly teaching hour for a year generated about 0.05 standard deviations to the score in most elementary subjects. A standard deviation is the equivalent of about 20 points.	The average annual wage of teachers is NIS 150,000. The average weekly scope of the position includes 25 teaching hours.	NIS 4,800	Victor Lavy (2012), "Expanding School Resources and Increasing Time on Task: Effects of a Policy Experiment in Israel on Student Academic Achievement and Behavior", National Bureau of Economic Research, No. w18369.
Reducing the number of students per class	In order for the achievements to be similar to those reached by diverting teachers, the cost should be \$23,000 per class per year.	The necessary input is calculated by teacher hours only. The average wage per teacher in the US is \$50,000, so the additional cost (necessary to achieve 7 grade points) is 0.46 of the wage.	NIS 7,886	Frederick Mosteller, "The Tennessee Study of Class Size in the Early School Grades." <i>The Future of Children</i> (1995): 113–127. The use of other studies leads to the conclusion that the cost-benefit ratio is even higher.