Recent Economic Developments

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Recent Economic Developments is published every half year. The first part includes a macroeonomic review and a fiscal survey. The macroeconomic review describes the main economic developments which occurred during the period covered in the publication, and then focuses on a current economic issue; it is not a wide-ranging description and analysis of current economic developments. The fiscal survey analyzes fiscal developments in light of the budget targets, and from a long term perspective. This is intended to complement, rather than replace, the comprehensive analyses that appear in the Bank of Israel Annual Report. The second part of the publication presents analyses by the Research Department of relevant topics in Israel's economy.

Part 1: Economic Developments and Fiscal Survey

Main economic developments

During the period covered in this report (April–September 2014), the moderation in the growth rate that began about a year ago continued. The growth rate was 1.9 percent in the second quarter of 2014, and in the third quarter, due to Operation Protective Edge, it was nearly zero (0.2 percent) and the negative output gap widened. The most recent data for the final quarter indicate that the economy, including the labor market, has recovered from the shock caused by Operation Protective Edge, but it is not clear if activity accelerated beyond that. Data from the Companies Survey for the fourth quarter point to an improvement in companies' situations and indicate that activity has recovered from the sharp decline seen during Operation Protective Edge. The inflation rate declined during the period reviewed, and the price level at the end of the period was lower than that of the corresponding period in the previous year.

One of the main factors in the moderate growth rate was the moderate growth in global demand, led by the moderate growth in the eurozone, the destination for about one-third of Israel's exports. Among developing economies as well there was some slowdown in the growth rate. In contrast, the US economy is recovering, albeit gradually. The moderate increase in demand abroad was reflected in a virtual standstill in Israel's total exports, as a decline in goods exports during the period reviewed offset continued growth in exports of services (excluding tourism, an industry negatively impacted by Operation Protective Edge).

In the period reviewed, a slowdown was seen in domestic demand as well, which began even before Operation Protective Edge. Investments in the economy, including investment in residential construction, declined for the third consecutive quarter, with a decline in imports of raw materials and capital goods. Contributing to the slowdown in domestic demand, besides the global slowdown, were the constrictive budget of 2013, as it impacted on activity with a lag; the zero percent VAT (value-added tax) plan and the delay in its approval, as they led to a slowdown in transactions in the construction industry against the background of the uncertainty they generated about that sector; and Operation Protective Edge, the effect of which on the economy is assessed to be about 0.3 percent of GDP, primarily as a result of negative impact on tourism. The Bank of Israel's Companies Survey for the third quarter signaled a general slowdown in activity in all industries, primarily in the tourism and the construction industries. Various confidence indicators were in a downward trend, though data published so far for September and October indicate that activity recovered from the sharp decline during Operation Protective Edge.

The labor market responded to the slowdown in activity and moderated as well—the unemployment rate increased slightly, the increase in employment was halted, and total inputs declined, with a decline in total work hours in in the economy in the third quarter. Nonetheless, the unemployment rate in Israel remains low, both in comparison with other economies as well as from a historical perspective. The average nominal wage per employee post continued to increase at a rate of about 3 percent per year. In recent months there has been some recovery in the labor market in terms of main aggregates (labor force participation rate, the unemployment rate, and the employment rate).

Tax revenues in the period reviewed were in line with the budget forecast. The budget deficit for 2014 as a whole, at about 2.8 percent of GDP, was slightly lower than the deficit ceiling of about 3.0 percent of GDP, because even though defense expenditures (including the direct effects of Operation Protective Edge) were higher than expected, civilian expenditures were lower than budgeted. Due to elections being brought forward, the state switched in the beginning of 2015 to an interim budget, until a new budget is approved. The fiscal scenarios related to that are discussed in detail in the fiscal survey that appears later.

Against the background of the moderate increase in activity, the decline in the rate of inflation and of inflation expectations, and the continued appreciation of the shekel, the Monetary Committee reduced the interest rate twice, consecutively, lowering it for August and September by 25 basis points each time, to reach 0.25 percent.

In the beginning of the period, the shekel continued its appreciation trend of recent years in terms of the nominal effective exchange rate. However, beginning in August, after the interest rate was reduced, the trend changed and the shekel began a depreciation in terms of the effective exchange rate, and a sharper depreciation against the dollar, which strengthened worldwide. Asset prices in the capital market in Israel continued to increase at a relatively rapid rate in the reviewed period, similar to prices on capital markets around the world.

In the first section of this publication, there is an analysis of the development of the real wage in Israel over the past two decades, followed by a fiscal survey. The second section contains a discussion of three topics: the monetary policy tool known as forward guidance, changes in the past decade in patterns of first home purchases, and investment in fixed assets in the health system. This publication also includes statistical tables.

The development of wages in Israel over the past two decades

- The wage per employee job and output per worker increased at a similar rate in Israel from the mid-1990s through 2013, by 0.9 percent and 1.0 percent, respectively.
- In 2009, real wages declined considerably, against the background of the financial crisis, and since then there has been a gap between that figure and output per worker—a gap that has even slightly increased in the subsequent years.
- Real wages were marked by wide fluctuations in the beginning of the past decade, so the assessment of the rate at which wage per employee job increased in the past two decades is sensitive to the years chosen to compare.
- Wages in Israel increased at a faster rate than wages in OECD countries at the end of the 1990s and in 2000–01, and in the following years the gap closed. On average, wages in Israel and in the OECD increased at a similar rate in the past 20 years.
- Wages in Israel are relatively low because average productivity per hour of work in Israel is relatively low compared with the corresponding figure in other OECD countries.
- As for the labor share in GDP, Israel is not all that different from other OECD members, both in terms of its level and in terms of its development over the years.

1. The trend of wages over time

Labor wage is the main source of income for households in Israel—representing more than 70 percent of their income, on average—so its level and its development over time serve as a main socioeconomic indicator. Periods of time in which the wage is increasing slowly are possibly marked by a standstill in the standard of living for the considerable portion of the population for whom the wage is the main source of income. Such periods are also sometimes marked by a decline in the labor share in GDP—an indicator of the distribution of income between capital and labor—and thus also to widening income gaps.

An examination of how the average real wage per employee job has developed in Israel in recent decades finds that the level today is similar to its level at the beginning of the previous decade. This finding features prominently in the public discussion on trends in the Israeli economy, and at times it is attributed to structural changes that have reduced workers' negotiating power. However, the data presented below indicate that in the past decade it is difficult to identify a significant, unexplained, moderation in wages.

The path of wages from the beginning of the previous decade indicates that the answer to the question "how much did wages increase?" is markedly affected by the point chosen to compare against. Figure 1 indicates that alongside a long-term trend of increase, real wages develop with considerable fluctuation between particular years, so that the measurement of the change during this period is very dependent on the base year. To illustrate, from 2001 until 2013 wages declined, although since 2003 they have actually been on an increasing trend, which is similar to the longer term trend. The rapid increase in wages in the second half of the 1990s, and in particular the sharp increase in 2000–01, stands out. This development began with the comprehensive wage agreements signed in the public sector, continued as a result of the strong response by business sector wages and an unexpected decline in the rate of inflation, and reached a peak in 2001, a year in which there was a sharp turnaround in growth and in the rate of increase in prices.[1] That is, though wages have in fact essentially remained in place since the beginning of the previous decade, but this standstill came after very rapid growth in the preceding years.

In order to examine the development of wages in a more precise manner—that is, beyond the effects of business cycles or other short-term noises[2]—two points in time with similar output gaps[3] should be chosen. Based on accepted estimates, the output gap in 1996 was similar to the gap in 2013. From 1996, the real wage increased at an average rate

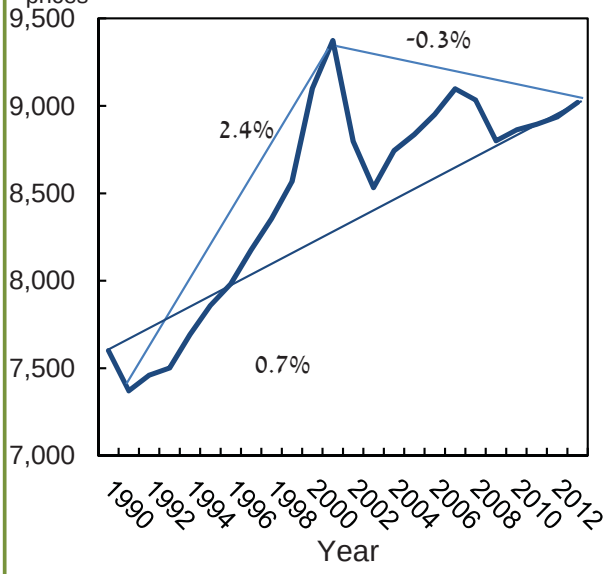
[1] A broad discussion of the development of wages during those years, with a distinction between the private sector and public services, may be found in Mazar, Y., "The development of wages in the public sector and the links between it and salary in the private sector", Bank of Israel Survey (forthcoming).

[2] In the short term, the average wage is affected by wage agreements in the public sector, changes in the minimum wage, inflation surprises, the business cycle (via the effect on demand), and supply shocks such as the large-scale immigration from the former Soviet Union in the early 1990s.

[3] The output gap is the difference between actual GDP and the GDP under full employment—"potential" GDP. A discussion of the calculation of the output gap appears in: Menashe Y. & Y. Yakhin (2005), "Mind the Gap: Structural and Nonstructural Approaches to Estimating Israel Output Gap", ISER No 2.

of 0.7 percent per year, similar to wages' average rate of increase since 2009.

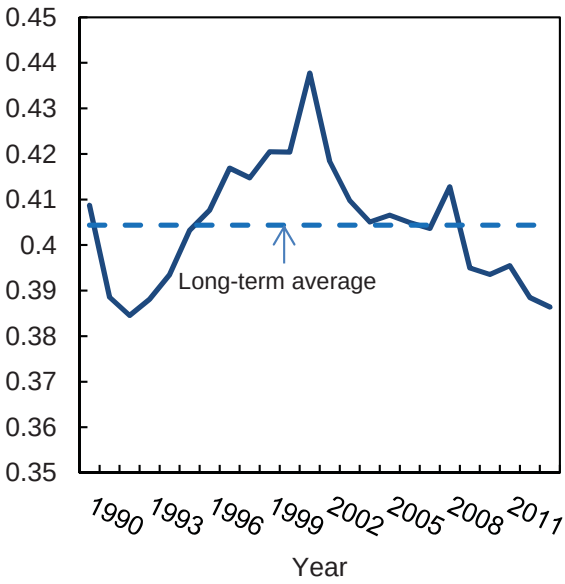
Figure 1
Average real wage per employee job, 1990–2013



SOURCE: Central Bureau of Statistics based on National Insurance Institute data.

For an increase in wages to be sustainable, it must be accompanied by an increase in labor productivity; otherwise, the worthwhileness of employment will decline over time and the economy's competitiveness will be negatively impacted. Therefore, it is accepted to examine the development of wages based on the extent of their increase relative to an accepted measure of productivity—output per worker, which is the ratio between GDP and the number of employees.[4] Output per employee increased from 1990 at a stable pace of about 1.0 percent per year, and it appears that over the long term there is a tight link between it and wage per employee job (Figures 2 and A-1). The figure also indicates that wages increased at an extraordinary rate, more than output per employee, from 1998–2001, and by 2004 returned rapidly to the long-term average. The connection between the business cycle and the ratio of wages to productivity is also reflected in another fluctuation: the ratio increased in 2008 and declined sharply in 2009. In 2009, the global financial crisis broke out, and nominal GDP per employee increased by 5.2 percent, while the nominal wage per employee job increased by only 0.6 percent; real GDP per employee increased by 1.6 percent that year while the real wage per employee job declined by 3.6 percent. Even though the ratio between salary and productivity declined sharply that year, in the coming years there was no correction in wages, and the ratio of wages to productivity was eroded by another 0.9 percentage points.

Figure 2
Ratio of average wage per employee job to output per worker, 1990–2013



SOURCE: Based on National Insurance Institute data.

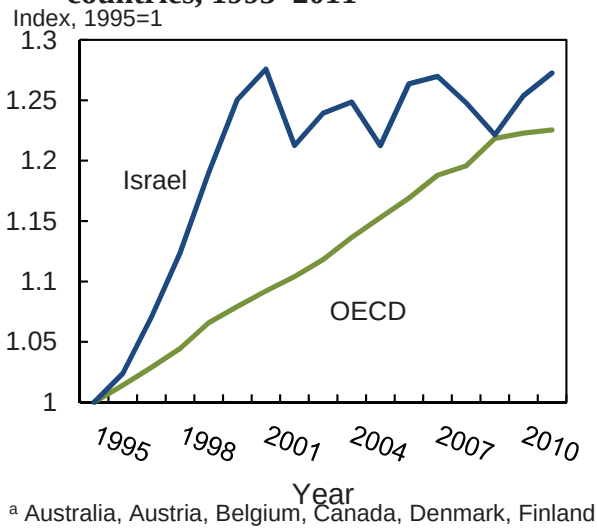
2. International comparison

Examining the development of wages in Israel compared with advanced economies (an average of the 19 members of the OECD for which there are comparable data), presents a picture similar to the one obtained from a historical comparison of domestic data: wages in Israel increased rapidly from the end of the 1990s until 2001, and then converged back to the trend line of other countries (Figure 3). Over the entire period, wages in Israel increased at a similar rate to that in other countries.

The data highlight the difference between Israel and other countries from the perspective of the response of wages to

[4] Output per worker includes self-employed workers, while wages are calculated for employee jobs. Nonetheless, since the share of self-employed workers in the economy's employment did not change markedly over the course of the period, their exclusion does not bias the trend calculation.

Figure 3
Development of average real wage per employee job: Israel and 19 OECD[a] countries, 1995–2011[b]



[a] Australia, Austria, Belgium, Canada, Denmark, Finland, France, Hungary, Italy, Japan, South Korea, Luxembourg, the Netherlands, Norway, Slovenia, Spain, Sweden, Switzerland, the US, and the UK.
[b] The variable shown is the product of (1) the ratio of wage payments in the economy to the number of employees and (2) the ratio between average hours of work by a full time employee and the average hours of work by all employees. This serves as an estimate of the average wage for an employee in a full-time position. The data for Israel is based on annual Income Surveys.

SOURCE: Israel data–based on Income Surveys; other countries—OECD.

the global financial crisis: in Israel, wages declined, while in other countries they continued to increase in 2008 and only then did they stabilize. Wages in Israel are marked by high flexibility relative to other countries, and it appears that this flexibility contributed to the response of domestic employment to the crisis being shorter and more moderate.[5]

Compared with the other OECD countries, the level of wages in Israel is in line with labor productivity: in 2012, average productivity per labor hour in Israel was around 73.4 percent of the OECD average, and the average wage per hour was around 74.7 percent of the average (based on purchasing power parity).[6]

Israel is in the middle of the distribution of OECD countries both in terms of the labor share in GDP, and when examining the decline in this share in the past fifteen years.

3. Other domestic factors impacting on wages

The trends presented above refer to gross wages. However, over recent decades, the average net wage increased by more than the gross wage, due to income tax rate reductions. Furthermore, in contrast to the gross wage, the ratio between the net wage and output per employee has not declined below the long-term average, and is stationary. Since 1996, net wage per employee job increased at an annual rate of 1.1 percent, while gross wage increased by 0.8 percent; since 2001, net wage increased by 0.7 percent per year, while gross wage declined by 0.3 percent, and since 2003, net wage increased by 1.7 percent while gross wage increased by 0.7 percent. That is, the reduction of tax on salary allowed an increase in employees' wages and the moderating of their wage pressures, without increasing employees' salary expenses.[7] Brender and Politzer (2014)[8] found that the tax reductions implemented since 1992 were divided between employees and employers at a ratio of about 60 to 40, respectively.[9] This calculation of course refers to average salary, and there are notable differences between employees in the extent that they were affected by the change in taxation, especially based on their level of income.[10]

In addition to tax reductions, there have been two processes in the economy recently that increased the return on labor and the cost of labor, but are not directly reflected in the real wage per employee job, as it is measured here:

Income grant (earned income tax credit, or negative income tax): Including this grant in the calculation of average salary per employee job would increase the salary in 2012 by 0.2–0.3 percent.

5 An expanded discussion appears in Bank of Israel Annual Reports for those years, particularly in the chapter dealing with the labor market. It was also found that the flexibility of the share of wages in GDP, relative to the output gap in Israel, is relatively high compared with the other OECD countries and with their average. See "Israel's Cyclically Adjusted Deficit" in Recent Economic Developments #132, September–December 2011 (Bank of Israel).

6 The comparison with the OECD does not include Turkey, Chile, Iceland or Mexico.

7 A detailed discussion of the issue can be found in a box published in Chapter 6 of the 2010 Bank of Israel Annual Report. The current discussion ignores the effect of tax reductions on government services, indirect tax rates, and the expenses derived from them.

8 Brender, A., and E. Politzer (2014), "The Effect of Legislated Tax Changes on Tax Revenues in Israel", Bank of Israel, Discussion Paper.

9 In contrast, GDP is divided this way: 66 percent return on labor, 34 percent return on capital.

10 An expanded discussion appears in Box 6.1 of the 2010 Bank of Israel Annual Report.

Required pension allowance: Since 2008, every employee and employer in Israel is required to set aside funds for a pension. The share of employees who set aside funds for a pension increased from about 60 percent in 2007 to more than 80 percent in 2012. As the cost to the employer is at least 12.5 percent of gross wage, including this component in calculations would have increased the cost of labor measured in the economy by about 1.5 percent on average.[11]

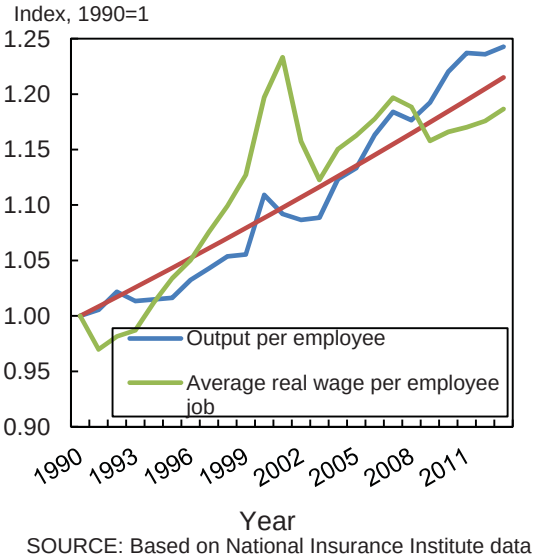
Yet at the same time, employees who join the public sector today save in defined contribution funds, instead of defined benefit plans, and this change reduced the effective net wage for some employees, particularly in the past decade, but is not reflected in the measurement.

4. Conclusion

This survey examines how the average real wage per employee job in Israel developed in the past two decades. It indicates that over the medium term, as well as in recent years, it is very much correlated with the development of output per employee. In the medium term, the wage is also impacted by other short-term factors, so that the assessment of the manner in which wage changes over time is a function of the years chosen to compare. This is especially true when major changes occur in a short period of time, like in the end of the 1990s and beginning of the previous decade. The survey also indicates that wages in Israel increased over time at a similar rate to most OECD member countries, and that the ratio between average wage per hour and output per hour of work is similar to the average ratio in those countries.

Appendix

Figure A.1
Output per worker and average real wage per employee job, 1990–2013



SOURCE: Based on National Insurance Institute data on employee jobs, and National Accounts.

[11] A discussion of the mandatory pension's effects on wages, labor cost, and employee welfare appears in Brender, A. (2011) "The effects of mandatory pensions on return to labor", Economic Quarterly #58 (1/2), pages 90–119 (in Hebrew); and in Brender, A. (2010) "The effect of retirement savings schemes on the distribution of income in Israel", Bank of Israel Survey #84, pages 87–123 (in Hebrew).

Fiscal Survey: A look at the fiscal situation ahead of the preparation of the 2015 budget, and the expected budgetary trends in the rest of the decade

- As a result of the fiscal program enacted in 2013, the deficit in 2014 totaled 2.8 percent of GDP, slightly below the ceiling of 3.0 percent of GDP.
- Expenditures were slightly lower than the original budget, despite the NIS 7 billion supplement to the defense budget due to the direct costs of Operation Protective Edge.
- Operations based on the interim budget, until the 2015 budget is approved, are expected to lower the government's civilian expenditures and make it possible to meet the expenditure ceiling while providing the NIS 4.3 billion supplement to the defense budget that was decided upon by the outgoing government.
- Due to the decline in the likelihood that the zero VAT for new home purchases program will be put into practice, and assuming that expenditures will be in line with the fiscal rule, the expected deficit for 2015 is similar to the deficit ceiling set out in the law—2.5 percent of GDP. With that, there is uncertainty regarding the realization of some of the decisions of the outgoing government relating to moderating the increase in expenditure and increasing revenue.
- In order to meet the declining deficit targets later in the decade, the government will need to make adjustments on the revenue side and on the expenditure side totaling about 1.5 percent of GDP. Meeting these targets will reduce the debt to GDP ratio in 2020 to 60 percent. Without making these adjustments, the deficit is expected to grow to more than 3 percent of GDP, and the debt to GDP ratio is expected to be about 70 percent of GDP.
- It is important that the budgetary adjustments made by the government not be based on measures the effect of which is hard to estimate to a reasonable level of precision, or on items the inclusion of which weakens the link between the recorded deficit and the development of public debt and the government's financial situation.

The fiscal adjustment made by the government at the time it approved the budget for 2013 and 2014 succeeded in halting the increase in the deficit, and even lowered it back to the level that makes it possible to stabilize the debt to GDP ratio. Moreover, control over government expenditure made it possible to absorb the costs of Operation Protective Edge—and its effects on the economy and on tax revenue—in 2014, without exceeding the original budget or the deficit ceiling, although at the price of reducing planned civilian expenditure. These achievements contributed to reducing the interest rate gaps between Israel and other advanced economies, and provide the next government with the ability to continue moving forward according to the fiscal path set out in the law, so that the deficit will be reduced to levels that enable a downward path of debt to GDP ratio. While moving forward along this path, the government will also need to decide whether progress in lowering the deficit will be based on continued lowering of public expenditure as a share of GDP, the level of which is currently lower than in most other advanced economies, or on increased revenue by increasing tax receipts, the level of which is also lower than in most other advanced economies. In making such a decision, significant attention will need to be paid to the decision that will be made regarding the future path of the defense budget.

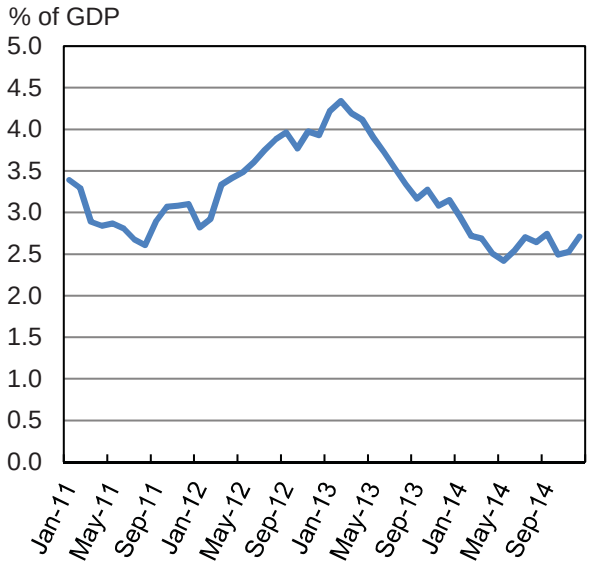
1. 2014 budget execution

From mid-2014, the State budget deficit (the cumulative deficit over the past 12 months) stabilized at a level of about 2.5 percent of GDP, before increasing to 2.8 percent of GDP in the year ending in December. This level is significantly lower than the high deficit levels in the first half of 2013 (4.2 percent of GDP in the 12 months ending in April 2013; See Figure 1), and to a great extent reflects the effects of the fiscal consolidation program put in place by the government with the approval of the budget for 2013 and 2014. This program was intended to reduce the deficit to 3 percent of GDP in 2014, an objective that was met[1], and to serve as a basis for its continued reduction in coming years in accordance with the path set out in the law. Since a significant part of the measures included in the program were structural, it actually does constitute an anchor for continued progress in accordance with the path.

The low deficit from the middle of the year reflects a level of expenditure that was about NIS 2 or 3 billion lower than the seasonal path that is consistent with full utilization of budget expenditures, a path that is calculated on the basis of the average multi-year distribution of expenditures over the course of the year. This level of expenditure compensated for the level of revenue that was slightly lower than the path that is consistent with the budget projection in the domestic non-tax revenue (which mainly includes National Insurance Institute surpluses, interest receipts, royalties and dividends).

[1] The actual deficit was about NIS 1 billion (0.1 percent of GDP) lower than the ceiling. The rest of the decline in the deficit to GDP ratio is the result of a change made by the Central Bureau of Statistics in the definitions of the GDP calculation, which increased the reported GDP for 2014 and previous years.

Figure 1
The cumulative deficit in the past 12 months, Jan. 2011 to Dec. 2014



SOURCE: Based on budget data.

Toward the end of the year, particularly in December, the government increased the defense budget by about NIS 7 billion in order to cover the costs of Operation Protective Edge during the year. The supplement is, by its nature, one-off, since the required expenditures are in respect of the costs of specific actions related to the operation (such as reserve pay) and the replacement of inventory following the campaign. This supplement led to the almost full utilization of the budget, with an increase in the defense budget compared to the original, and a parallel reduction in the other items.

There are four main factors that explain the low level of civilian expenditure compared to the budget framework—a level which made it possible to provide a significant supplement to the defense budget without exceeding the original budget:

1. The existence of a number of items in the budget that are characterized by a perennially low utilization rate compared to the original budget. This makes it possible to transfer some of the budget intended for these items to other expenditure items, some of which are unexpected such as Operation Protective Edge.[2] For instance, expenditure in the "miscellaneous" budget item was about NIS 5 billion lower than the budgeted amount in 2014.

2. Interest payments that are significantly lower than the budget projection, even after the projection was lowered by NIS 2 billion at the end of 2013.[3] These reflect: i) the lower-than-expected inflation, which reduced the interest payments on CPI-indexed debt; ii) the smaller-than-expected size of the debt, due to the deficit that was lower than the target in 2013, which was not fully reflected in the lower interest payment projection at the end of 2013; iii) the low interest rates in the economy, which affect interest payments on the variable-rate debt.

3. Price increases that were lower than the budget projection: The average price level in 2014 was 1.9 percent lower than the budget projection prepared in mid-2013.[4] While only some of the budget components—other than the aforementioned interest item—are immediately sensitive to the development of the CPI, such a significant change contributes to reduced expenditures even when it is only in part of the budget.

4. Lower utilization of the investment in transportation infrastructure item than originally budgeted. This item was budgeted based on a work plan that was only partially realized. Therefore, actual expenditure at year-end was significantly lower than the budget.

In retrospect, the low level of expenditures in the above items made it possible to absorb the shocks that took place during the year, which required marked supplements to the budget. The most significant supplement was, as stated, in respect of Operation Protective Edge, but in addition to the supplemental defense budget, the government was required to make other unplanned expenditures, *inter alia* to assist Hadassah Hospital, to support the rehabilitation of Israel Military Industries, and to finance the reform in the Israel Broadcasting Authority.

Tax receipts during the year (NIS 254.7 billion) were slightly higher than the original tax projection (NIS 253.3 billion),

[2] The reference here is not to the general reserve item which, in contrast with the former, is already almost completely designated for specific expenditure items at the time the budget is approved.

[3] Toward the end of 2013, the government decided to cancel the planned NIS 3.75 billion tax increase. Against that cancellation, the government lowered the budget base by the same amount, of which about NIS 2 billion was in the interest payment item.

[4] According to the original budget projection, the average price indices (not December over December) were expected to increase by 1.7 percent for 2013 and 2.3 percent in 2014. Actual prices increased by 1.5 percent in 2013 and 0.6 percent in 2014.

even though nominal GDP increased less than the original projection, mainly due to the lower-than-expected increase in the GDP deflator. An analysis of the factors that led to the increase in tax receipts beyond the effect of nominal GDP (which, as stated, as lower than expected) and the tax rate increases in 2013, using the Bank of Israel Research Department's tax model, shows that this increase reflects growth in consumer goods imports (in shekel terms), an increase in real wages, and the significant contribution of the positive developments in the capital market, particularly capital gains on stocks and bonds. In contrast, the slowdown in new home sales since the beginning of the year negatively impacted revenue. The analysis also shows that tax receipts in 2014 were slightly lower than expected given the development of the real and financial variables included in the tax model.[5]

The debt to GDP ratio at the end of the year is similar to its level at the end of 2013. The main upward force on the debt to GDP ratio, in addition to the deficit, is the depreciation of the shekel against the dollar. (The vast majority of the government's foreign currency debt is denominated in dollars and is not hedged.) In contrast, the decline in the Consumer Price Index during the year, against a slight increase in product prices, eroded the ratio between the indexed component of the debt and GDP. Another significant moderating factor is the financing of about NIS 9 billion of the deficit by reducing government balances at the Bank of Israel and by the net repayment of credit (mainly mortgages) that the government had made available to the public in the past. The repayment of credit has, in recent years, been a significant source of financing the deficit, since the taking out of new State-financed mortgages has been reduced. This was reflected in the fact that between 2009 and 2014, gross public debt declined by 7.5 percentage points of GDP, while net debt declined by only about 3 percentage points.

2. The 2015 budget

At this stage, it is still unclear when the 2015 budget will be approved by the government and the Knesset, but it will apparently not happen before the second half of the year. Until then, the government will operate subject to the interim budget based on the 2014 budget. The interim budget enables the government to spend up to 1/12 of the previous year's budget each month.[6] Given the customary seasonal path of government expenditures, and in view of the low level of debt repayments in 2015 and their distribution over the course of the year, the interim budget is not an impediment to maintaining a level of expenditure that is similar to the one from 2014.[7] However, based on past experience, other rules that guide government activity through an interim budget lead to somewhat lower expenditures in such a period than the overall ceiling. This means that it is highly likely that until the budget is approved, the level of government expenditure will be lower than the seasonal path that is consistent with full utilization of the budget in accordance with the expenditure ceiling set by the law. As a result, some government services will be negatively impacted, particularly those that are based on new decisions made in the past year, and infrastructure investments.

The expenditure ceiling in the budget is calculated based on the fiscal rule that the government adopted at the end of 2013, which sets out that government expenditure will increase in real terms in accordance with the pace of population growth over the past three years (1.9 percent in 2012–2014, which sets the ceiling for 2015) plus the quotient of the number 50 (which reflects the implicit long-term debt to GDP ratio target) and the debt to GDP ratio for the most recent known year (67.6 percent at the end of 2013). According to this calculation, the permitted real increase in the 2015 budget is 2.65 percent, meaning an addition of NIS 8.4 billion (Table 1).[8] Given the tax rates set out in the law, and based on the Research Department's updated macroeconomic forecast, the expected deficit for 2015—if expenditures are in line with the ceiling—is 2.6–2.7 percent of GDP, similar to the 2.5 percent of GDP target set out in the law.

The outgoing government approved a budget proposal that sets a higher deficit target of 3.4 percent of GDP, for two

[5] This is in addition to the positive lagged effect of the tax rate increases from 2012, according to the coefficients calculated in Brender A. and E. Politzer (2014), "The Effect of Legislated Tax Changes on Tax Revenues in Israel", Bank of Israel Research Department, Discussion Paper 2014.08.

[6] The amount accumulates from month to month, such that lower expenditures in a certain month make it possible to increase expenditures in the following months. According to the actual seasonal path, budgetary expenditures are, for the most part, lower in the first months of the year.

[7] The expenditure base according to which the interim budget is calculated also includes repayment of principle on public debt, while the expenditure ceiling does not include this. Therefore, when principal repayments are higher in a year in which an interim budget is used than in the preceding year, particularly where there are high repayments at the beginning of the year, this may restrict budgetary expenditure.

[8] This projection is based on the government's interpretation of the Budget Law. According to this interpretation, the reduction in expenditure that was carried out at the beginning of 2014, in parallel to tax reductions, cancels the need to reduce the budget (by about NIS 6 billion) in respect of the fact that price increases were lower than the projection that served in compiling the 2013–2014 budget (see Section 2, page 10 of the proposed State Budget for 2015, which was submitted to the government on October 7, 2014).

Table 1
Calculation of expenditure ceiling for 2015

		(NIS billion)
1	Expenditure ceiling in 2015 budget (net, including credit)	319.3
2	Reduction of base, in line with government and Knesset decisions[a]	3.8
3	Base for calculating expenditure ceiling for 2015 (1–2)	315.5
		(%)
4	Real rate of growth of expenditure, according to the rule	2.65
		(NIS billion, 2014 prices)
5	Addition to 2015 budget (3*4)	8.4
6	Addition in respect of inflation expected for 2015[b]	1.9
7	Nominal expenditure, per expenditure rule (3+5+6)	325.8

[a] In December 2013, the government decided to reduce the expenditure ceiling in tandem with reductions in income taxes and National Insurance fees.
[b] Based on the Research Department Staff Forecast published in December 2014.
SOURCE: Based on budget data.

main reasons: increasing the expenditure ceiling by NIS 4.3 billion in order to make a supplement to the defense budget possible, and tax decreases totaling NIS 2.5–3 billion, the cost of the plan to lower VAT on new homes for some purchasers to zero.

In the meantime, it became less likely that the government would continue to promote the "Zero VAT" law, and operations subject to a interim budget may, as stated, be reflected in some reduction in the level of expenditure—particularly civilian expenditure—over the year as a whole. This reduction will make it possible to increase defense expenditure by the amount planned—including the supplementary budget—without raising the expenditure ceiling. Therefore, a decision to maintain the expenditure ceiling set out in the law, and to avoid tax reductions, will make it possible for the government to meet the deficit ceiling set out in the law, strengthen the credibility of its commitment to continued deficit reduction and to continued reduction of the debt to GDP ratio, and entrench the important process that began with the approval of the 2013–2014 budget. However, there is uncertainty regarding the realization of some of the decisions of the outgoing government regarding moderating the growth in expenditures and increasing revenue. Should these decisions not be put into practice by the next government, particularly if the latter wants to expand activities in various areas, it will become increasingly difficult to meet the expenditure and deficit ceilings.

In addition to the technical restrictions resulting from operations subject to an interim budget in 2015, the current expenditure ceiling poses a complex challenge for the government: promoting its plans while maintaining the fiscal rules that it set out. This challenge was reflected in the decision of the outgoing government to raise the ceiling in the 2015 budget. Before the proposal was approved by the government, the expected expenditure path for this year—as derived from previous decisions, existing legislation and demographic developments—was much higher than the level enabled by the expenditure rule. The government dealt with this gap by raising the expenditure ceiling for 2015 (both by cancelling the price adjustment outlined above, and by excluding the supplementary defense expenditure). In addition, expenditure plans for 2015 were reduced, mainly in two items: transportation infrastructure and various expansions proposed by the Trajtenberg Committee in the area of education and services to parents in the education system (some of which were cancelled back in 2013). These eased both the expenditure restriction in 2015 and its multi-year path by billions of shekels (see Section 3 below). In addition, various expenditures were transferred to the "Conditional expenditure" item—based on plans such as an Israel Railway bond offering and the transfer of money from the Jewish National Fund—and were thereby excluded from the expenditure ceiling.[9] It is currently uncertain whether some of these items will be approved.

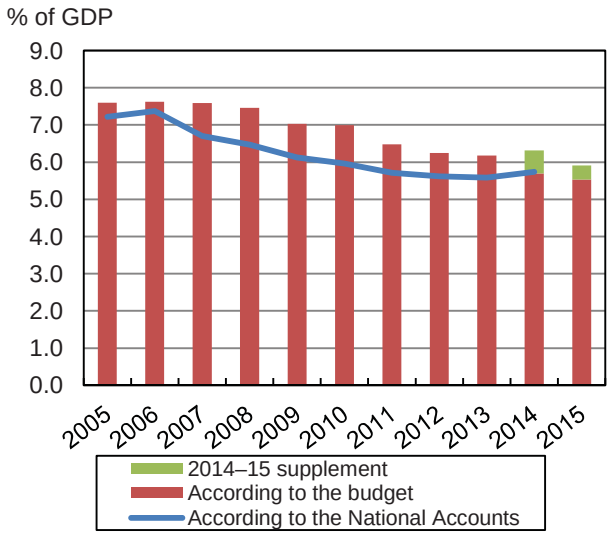
As to the supplemental defense budget, in contrast to the one-off supplement in 2014, which was provided against specific expenses in respect of Operation Protective Edge, the

[9] The expenditure ceiling does not apply to expenditures financed on the basis of designated revenue from non-government sources.

supplement for 2015 is considered one-off only because the government did not budget a continuation of the supplement in future years in advance. This was because the government was waiting for the recommendations from the Locker Committee concerning the setting of the defense budget for the next few years. In order for it to truly be possible to moderate growth of the defense budget in coming years, with the objective of enabling growth in civilian expenditure within the limit of the existing expenditure ceiling, it is important to specify in a clear program how the defense budget will fit into the desired framework in 2015 and beyond. Figure 2 shows the gradual and continued decline in defense expenditures as a share of GDP in recent years—years which reflected the effect of the Brodet Framework for the defense budget, which was adopted from 2008—and the further decline that was expected in 2015, even given the NIS 4.3 billion supplement. Adhering to a declining path such as this requires a clear work plan, the defense and economic ramifications of which are acceptable to the government. Due to the size of the amounts involved relative to the total State budget—and certainly relative to the yearly budget supplements—it is important that a framework be set that will assist in reducing the uncertainty in relation to the ability to increase civilian expenditure while maintaining the expenditure and deficit ceilings.

As a principle, it is important for there to be congruence between the government's approved expenditure programs and the expenditure ceiling set out by the government. It is also important that there be congruence between expenditures according to the expenditure rule and the sources available to the government. A gap created between the cost of the various programs adopted by the government and the expenditure allowed by the fiscal rule—and the desire to sometimes delay the required adjustments on the taxation side, or even the desire to ease the tax burden—may create pressure to include items in the budget framework that may not be able to be brought to fruition, or the inclusion of which weakens the connection between the recorded deficit and the development of public debt and the government's financial situation. On the revenue side, items of the first type include, for instance, additional revenue as a result of "enhanced collection". Experience shows that it is preferable to be cautious in the inclusion of estimates of increased collection in the overall revenue projection. It is not always possible to predict when administrative taxation processes will actually impact collection, additional revenue observed in a certain action may sometimes be offset due to diversion from other activity, and public responses to changes in tax arrangements are not always known in advance.[10] Items of the second type include, for instance, revenue withdrawals from public sector entities and from government companies. The expenditures side includes the transfer of government activities to the business sector in return for government commitments to pay for them over time, or changes in the spread of government payments in exchange for interest payments to non-government entities. In order for the budget path set out by the government to continue maintaining its reliability over time, it is important that the government continue to avoid reverting to such items as much as possible.

Figure 2
Net defense expenditure by various definitions, 2005–15[a]



[a] The figures for 2014 are taken from utilization estimations, and the figures for 2015 are taken from the budget proposal approved by the government.

SOURCE: Based on budget and National Accounts data.

3. Forecast and scenarios for the years 2015 to 2020

The deficit and expenditure ceilings set by the law are multi-year, and are intended to create a stable path that enables the government plan its expenditures and tax rates over time, while supporting macroeconomic stability. It is therefore

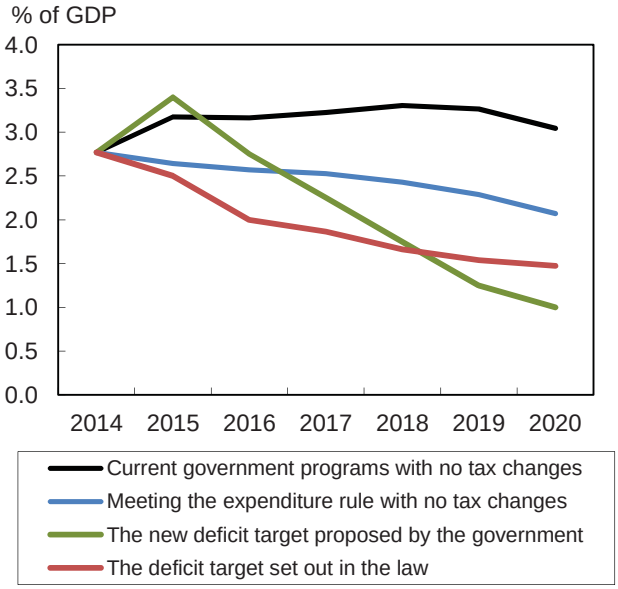
[10] The way to identify phenomena such as "enhanced collection", meaning phenomena that cannot be directly observed, is to find unexplained residuals in the models that assess tax revenue. For instance, when revenue is higher than expected by the model (based on actual data for the assessed period), it may indicate that a factor that was not included in the model—such as enhanced revenue collection—contributed to the additional income, and vice-versa. For instance, data for 2014 indicate that collection was, according to the model, slightly lower than expected based on known data, even though processes to strengthen the tax collection system were put in place. Details of the tax model and an analysis of its level of precision in explaining the development of tax revenue in Israel can be found in Brender, A. and G. Navon (2010), "Predicting Government Tax Revenues and Analyzing Forecast Uncertainty," Israel Economic Review 7(2), pp. 81–111.

important to assess the ramifications of fiscal decisions not only on the current year's budget, but also on fiscal policy in the medium term. This analysis is presented on the assumption that economic growth in 2016 and onwards will average 3 percent per year—a pace of growth that takes into account the demographic changes that are taking place in Israel.

Figure 3 shows the path of the deficit targets set out in the law, which were approved with the 2014 budget (the red line—"deficit target set out in the law"). According to these targets, the deficit must shrink from 2.5 percent of GDP in 2015 to 2.0 percent of GDP in 2016 and to 1.5 percent of GDP from 2019 onwards. The analysis shows that if the government meets the expenditure ceiling but does not make changes to the tax rates (the blue line), the expected deficit will exceed the targets set out in the law in all years. The additional taxes required to meet the deficit targets in this case total NIS 8 billion, most of it in 2016. Comparing the expected deficit in a scenario of meeting the expenditure ceiling without making changes in taxation to the deficit targets proposed by the government in the 2015 budget proposal (the green line—"new deficit target") shows that in this case, about NIS 14 billion in additional taxes will be required, but the start of the tax increases can be deferred to 2017 and be spread out over three years (the final deficit target on the "new" path is lower than on the path set out in the law). It can also be seen that if the government acts according to the individual expenditure programs that it approved and does not bring its expenditures in line with the expenditure ceiling (the black line), the expected deficit will be higher than 3 percent of GDP and will not decline until the end of the decade.

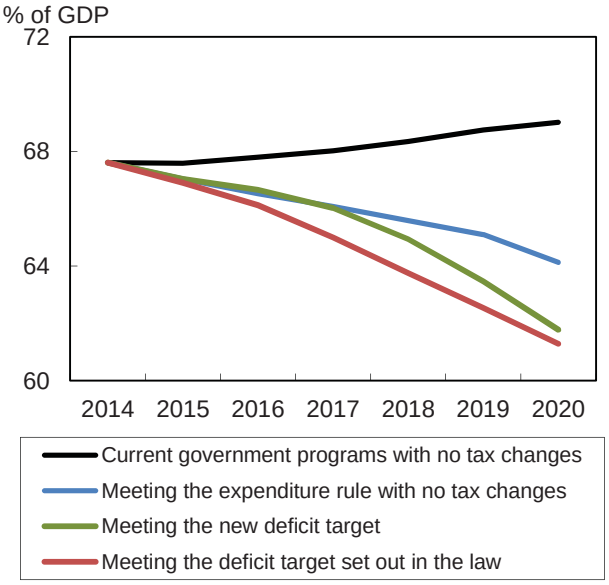
Meeting the deficit targets set out in the law is expected to reduce the debt to GDP ratio to about 61 percent of GDP in 2020 (the green line in Figure 4). But in order to meet these targets, the government will, as stated, need to increase tax revenue by about 0.6 percent of GDP by 2020 (the difference between the blue line and the green line in Figure 3). The gap between the black line and the red line in Figure 3 reflects the total adjustments required every year—on the revenue side and on the expenditure side—in order not to exceed the deficit ceiling. In total, a cumulative adjustment of about 1.5 percent of GDP is required until 2020. Meeting the new deficit path proposed by the outgoing government (the green path) will also make it possible to reduce the debt to GDP ratio to about 60 percent of GDP in 2020, but will require a total budgetary adjustment of 2 percent of GDP. In other words, the price of delaying the start of the adjustment, as reflected in the gap between the green and red lines until 2018, is reflected in the need for a larger budgetary adjustment later in the decade. If the government does not increase its revenues and does not adjust its expenses to the expenditure ceiling, the debt to GDP ratio is expected to increase slightly from its current level, and to exceed 69 percent of GDP at the end of the decade (the black line in Figure 4).

Figure 3
Deficit targets and deficit to GDP ratio paths according to various policy scenarios, 2014–20



SOURCE: Based on budget data.

Figure 4
Debt to GDP ratio paths according to various policy scenarios, 2014–20

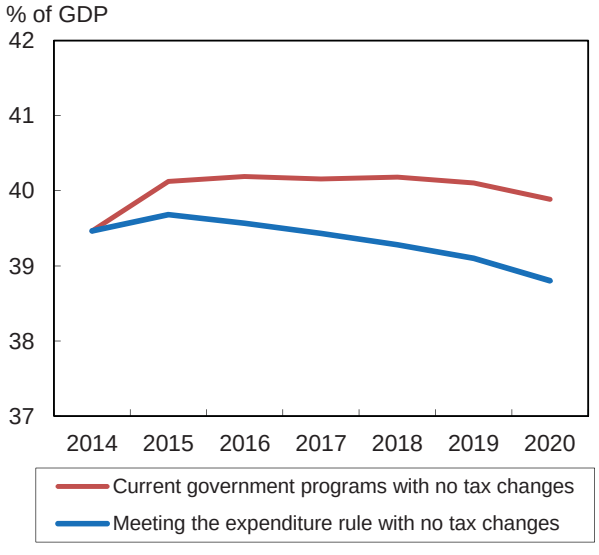


SOURCE: Baseed on budget data.

It is important to note that despite the significant gap between the paths, the gaps between the government's commitments and the expected deficit and the deficit targets and expenditure according to the law are much smaller than they were at the end of 2012.[11] And in contrast with 2012, the debt to GDP ratio in this scenario does not grow to unsustainable levels from the standpoint of the government's ability (and the financial markets' willingness) to finance it over time, thanks to the fiscal adjustment made in 2013.

According to the expenditure rule, the expenditure ceiling is expected to grow until the end of the decade by an average annual rate of about 2.5 percent. The consequence of this outline is a continued decline in the weight of public expenditure in GDP, amounting to about 1 percentage point compared to 2015 (the blue line in Figure 5). In order to realize this decline, over the next few years the government will need to gradually reduce the individual expenditure programs that it decided upon (the red line in Figure 5). The cumulative gap between the cost of these programs and the ceiling is about 1 percentage point in 2020. This gap reflects the basic dynamic of growth in the various budget items, such as education expenditures, some of the National Insurance benefits, and healthcare expenditures—which exhausts most of the growth permitted by the expenditure rule—and the cost of the multi-year investment programs in transportation infrastructure. In view of the uncertainty regarding the outline of the defense budget in the rest of the decade, the analysis presented here assumes a very moderate growth outline in defense expenditures.[12] This brings the expected challenge facing the government during these years as part of the effort to meet the expenditure rule into sharper focus: Not only is the government unable to make decisions on increasing expenditures in any item without reducing expenditures in another, but beyond that, it must significantly reduce existing expenditure programs or those that have already been decided upon, even though civilian public expenditure in Israel is already almost the lowest among the advanced economies.

Figure 5
Public expenditure to GDP ratio in various policy scenarios, 2014–20



SOURCE: Based on budget data.

If the next government chooses to adhere to the current expenditure path, its ability to increase civilian expenditure will depend on its readiness to significantly reduce defense expenditure, since interest expenses as a share of GDP are not expected to continue declining significantly, particularly if the government doesn't reduce the deficit in accordance with the outline set out in the law—an outline that means raising tax rates or restraining growth in expenses to a lower rate than the ceiling permits.[13]

Meeting the deficit ceiling also has a significant effect on the interest payments that the government will have to make in the future. For instance, interest payments in 2020—which are estimated in the policy outline in which government expenditures are in accordance with the programs approved and no measures are taken on the revenue side beyond the existing legislation—are about NIS 3.5 billion higher than the outline of meeting the deficit target. This gap shows the important contribution reducing the deficit makes to freeing up budgetary resources in the long term, in addition to its contribution to reducing the risk premium in the economy, which also assists business sector activity and GDP growth.

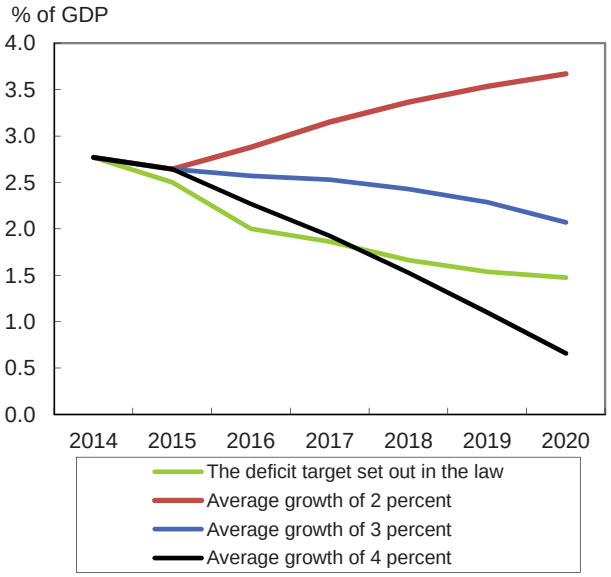
[11] See the Fiscal Survey from December 2012.

[12] The assumption is that the defense budget for 2015 will be in line with the budget proposal approved by the outgoing government, and that the budget will thereafter increase from that level by about 1.3 percent per year (similar to the growth rate set out in the "Brodet Outline"). This outline means that the defense budget in 2015 will be half a percent of GDP lower than actual expenditure in 2014 (which included the one-time costs of Operation Protective Edge), and that it will decrease by another half a percent of GDP until 2020.

[13] This analysis moderates the increase in interest on public debt as a result of macroeconomic developments in Israel and abroad, due to the effect of the decline in the debt to GDP ratio on the risk premium of Israel's public debt. In the policy outlines and scenarios where the debt ratio increases, interest expenses also increase accordingly. Brender, A. and S. Ribon (2015), "The Effect of Fiscal and Monetary Policies and the Global Economy on Real Yields of Israel Government Bonds", Bank of Israel Research Department, Discussion Paper 2015.02 contains a discussion of the effect of fiscal policy on the interest rate.

The analysis above is sensitive to assumptions regarding the future growth rate of the economy. The current estimation is based on slightly higher assumptions than those of the OECD and of other entities that review the Israeli economy, but there is still uncertainty regarding them. An analysis of how the deficit path will affect the outline in which the government meets the expenditure ceiling but does not increase revenue shows that if the growth rate averages 4 percent per year, the government will be able to meet the lower deficit targets (the black line in Figure 6). In contrast, if the growth rate falls to an average of 2 percent, it is expected to lead to a gradual growth of the deficit to almost 4 percent of GDP (the red line in Figure 6) and to parallel growth of the debt to GDP ratio to about 77 percent of GDP.

Figure 6
The deficit according to various growth rates, 2014–20



SOURCE: Based on budget data.

Statistical Tables

Table 1.1 National Accounts, 2013-2014

(percentage change in annual terms, at constant prices, seasonally adjusted)

		Change from previous quarter					Year-on-year change[b]	
		2013		2014			2014	
	2013[a,b]	III	IV	I	II	III	II	III
GDP	3.2	3.1	2.5	2.8	1.9	0.2	1.6	2.6
Business-sector product	3.4	2.5	2.2	2.3	2.5	-0.5	1.4	2.0
Private consumption expenditure	3.3	3.3	2.7	2.7	5.1	3.4	3.4	3.3
Gross domestic investment	-0.1	21.9	-18.5	4.8	4.1	-13.4	2.4	-12.4
Fixed investment	1.1	9.4	2.0	-9.8	-5.2	-6.5	-3.9	-3.2
Goods and services exports excl. diamonds	0.9	-17.9	33.3	-0.1	-7.5	-2.7	-1.4	8.8
Goods exports[c]	-1.2	-1.5	11.9	19.5	-26.6	9.7	-5.2	8.8
Services exports[c]	7.0	-28.0	23.6	-3.2	9.2	-15.2	-0.9	3.3
Goods and services imports excl. diamonds[d]	-2.7	6.6	-2.0	0.5	-1.5	6.9	0.1	0.4
Goods imports[e]	0.7	10.7	-1.3	-7.7	-5.0	15.4	-3.4	1.0
Services imports[e]	-3.5	0.5	-2.2	41.3	-1.9	6.1	10.0	3.5
Public sector consumption	3.5	4.9	2.0	1.3	6.5	4.4	2.2	6.0
Public consumption excluding defense imports	3.3	2.1	2.3	1.8	6.6	5.3	1.3	6.4
Domestic use of resources	2.5	7.8	-3.9	3.2	5.1	2.6	2.8	0.7

[a] Compared with previous year.

[b] Unadjusted data.

[c] New calculation - excluding subsidies.

[d] Excluding defense imports, ships and aircraft.

[e] New calculation - excluding taxes.

SOURCE: Based on Central Bureau of Statistics data.

Table 1.2 Indicators of Business Activity, 2013-2014
(percentage change, in annual terms, seasonally adjusted)

	Change from previous month						April-September		
	2014						Change from previous period	Year-on-year change[a]	Last month for which data available*
	Apr	May	Jun	Jul	Aug	Sep			
Composite state-of-the-economy index	0.1	0.1	0.0	0.0	0.1	0.2	0.6	2.0	September
Large-scale retail trade	1.6	-0.9	1.8	-1.7	-1.1	3.6	1.5	5.2	September
Industrial production (excl. diamonds)	-0.8	1.3	-0.9	-0.5	4.0	1.4	-2.6	1.4	September
Index of trade revenue	2.0	-1.1	0.3	-4.3	2.3	4.2	-0.8	2.6	September
Index of trade and services revenue	0.7	-1.3	1.2	-3.4	2.1	3.0	-0.5	2.4	September
Index of services exports	-0.7	-0.8	0.1	-3.5	-8.0	10.8	3.3	11.7	September
Tourist arrivals	-3.1	9.2	3.2	-32.5	-16.4	22.8	-11.8	-6.4	September
Residential construction									
Starts	-11.8	9.8	-14.3	39.8	-35.4	53.3	-4.2	-8.4	September
Completions	28.5	-7.8	8.0	31.0	-13.3	-5.6	4.8	-2.0	September
ILA land permits (units)[a,b]	1,335	2,801	2,619	1,681					July
Climate indices based on Business Tendency Survey[c]									
Assessment of present activity: total business sector	0.28	0.28	0.29	0.15	0.12	0.20			September
Assessment of present activity: manufacturing industry	0.28	0.29	0.24	0.21	0.19	0.22			September
Assessment of present activity: services industry	0.30	0.31	0.33	0.13	0.09	0.21			September
Assessment of future activity: total business sector[d]	0.23	0.22	0.22	0.23	0.25	0.21			September
Business Climate Index (total business sector)	0.23	0.24	0.24	0.27	0.19	0.12			September

* For monthly indicators, when the last month for which data is available is September, the previous comparison period is October–March; when the last month with data available is August, the comparison period is October–February; when the last month with data available is July, the comparison period is October–January. When the last month with data available is June, the comparison period is October–December. For indicators produced quarterly, the comparison is to the last complete quarter in the previous period reviewed.

[a] Unadjusted data.

[b] Land transactions authorized by the Israel Lands Authority in the relevant period.

[c] Figures are in terms of monthly growth of business product.

[d] Expectations are attributed to the middle of the three month period following the survey.

SOURCE: Based on Central Bureau of Statistics and Ministry of Construction and Housing data.

Table 1.3 Indicators of Labor Market Developments, 2013-2014
(percentage change, seasonally adjusted)

		Percent change from previous quarter					April-September		
	III/2014	2013		2014			Change from previous period	Year-on-year change[a]	Last month for which data available*
	(thousand)	III	IV	I	II	III			
Civilian labor force	3,791.7	0.5	0.4	1.1	0.8	0.4	0.4	2.7	September
Israeli employees	3,549.9	1.3	0.6	1.0	0.5	0.1	0.1	2.6	September
of which: in public services	1,263.4	1.9	0.3	1.1	0.3	1.3	1.3	3.1	September
in business sector	2,292.7	0.9	1.0	1.0	0.6	-0.2	-0.2	2.3	September
Foreign workers and Palestinians (unadjusted)	286.0	0.7	-1.0	0.1	-0.8	-4.9	-4.9	-6.5	September
Average hours worked weekly per Israeli employee	34.9	-3.3	2.5	-0.6	-1.7	-1.7	-1.7	3.6	September
Weekly labor input in business sector (incl. foreign workers and Palestinians)	106,394.2	0.6	2.9	0.0	-1.5	-1.4	-1.4	4.0	September
of which: Israelis	93,380.8	0.7	3.5	-0.2	-1.6	-0.7	-0.7	5.5	September
Weekly labor input in public services (Israelis)	31,575.5	0.8	3.4	0.0	-2.0	0.5	0.5	8.4	September
Unemployed	241.8	-10.5	-3.1	2.6	5.0	5.3	5.3	4.9	September
Job seekers	211.2	0.8	-1.2	-0.1	-0.6	0.2	-0.5	-4.5	September
Claims for unemployment benefits	89.6	0.3	3.7	-0.3	-6.2	8.3	-2.4	2.4	September
Job vacancies[a]	65.3	0.4	-4.8	0.9	2.5	-1.2	2.3	1.8	September
	(NIS)								
Real wage per employee post[b]		-0.4	-0.2	0.6	0.6	0.9	1.4	1.6	September
In public services		0.2	-0.2	1.2	0.4	1.1	1.6	2.2	September
In business sector		-0.5	-0.5	0.6	0.5	0.8	1.3	1.3	September
Nominal wage per employee post[b]	9,237.3	0.6	0.1	0.3	0.6	1.0	1.2	2.0	September
In public services	8,941.1	0.9	0.2	0.9	0.3	1.0	1.3	2.6	September
In business sector	9,383.8	0.3	0.3	0.2	0.5	1.1	1.2	1.7	September
Unit labor cost		-0.4	0.1	0.7					March
		Percent, seasonally adjusted							
Participation rate		63.7	63.7	64.1	64.3	64.3			September
Employment rate		59.9	60.0	60.4	60.4	60.2			September
Unemployment rate		6.0	5.8	5.8	6.1	6.4			September
Depth of unemployment[c]		18.5	21.4	23.1	19.6	16.7			September

[*] For monthly indicators, when the last month for which data is available is September, the previous comparison period is October–March; when the last month with data available is August, the comparison period is October–February; when the last month with data available is July, the comparison period is October–January. When the last month with data available is June, the comparison period is October–December. For indicators produced quarterly, the comparison is to the last complete quarter in the previous period reviewed.

[a] Unadjusted data.

[b] Including foreign workers and Palestinians. Seasonally adjusted data.

[c] Percent of unemployed seeking work for more than six months (unadjusted).

SOURCE: Central Bureau of Statistics Labor Force Survey, except for data on Israelis, non-Israelis, and labor input in the business sector, and total Israelis employed, which are the Central Bureau of Statistics (CBS) National Accounts estimates; job seekers, which are derived from the Israeli Employment Service; claims for unemployment benefits, which are derived from the National Insurance Institute; job vacancies, which are derived from the CBS Survey of Job Vacancies, and the Balance of Employment, which is derived from the Ministry of Economy's Employers Survey.

Table 1.4 Government Budget Performance, 2013-2014

		Change from previous quarter					April-September		
		2013		2014					
	2013[a]	III	IV	I	II	III	Change from previous period	Year-on-year change	Last month for which data available*
Domestic deficit, as percent of GDP	-2.2	-1.0	-5.8	0.5	-0.8	-1.5			September
Total deficit excluding credit, as percent of GDP	-3.1	-1.4	-7.1	-0.1	-1.6	-2.3			September
Deviation from domestic budget path, excl. credit extended:[b]					(NIS billion)				
Revenue	0.0	4.4	1.6	0.6	-1.8	-0.3	1.3	-6.3	September
Expenditure	-0.8	1.1	-0.8	0.3	-6.0	0.6	-12.5	-0.7	September
Deficit	2.4	3.4	2.4	0.3	4.2	-0.9	13.8	-5.6	September
Total deficit excluding credit	-33.0	-3.8	-19.0	-0.3	-4.3	-6.2	8.9	-1.2	September

	Real change year-on-year (percent)							
	2014							
	Apr	May	Jun	Jul	Aug	Sep		
Government domestic revenues excluding credit	8.3	5.2	-6.4	-3.0	9.1	-3.5	1.4	September
Government tax revenue	9.0	1.2	-4.0	-0.9	10.5	0.4	2.5	September
of which : income tax, net	14.9	-10.8	-8.4	3.3	15.4	-1.5	1.7	September
VAT, gross	-1.8	13.0	-7.1	-4.6	3.5	5.9	1.5	September
Government expenditure excluding credit	2.7	0.8	-0.8	5.2	3.2	-1.9	1.5	September
National Insurance allowances	-4.3	1.0	-2.1	1.2	7.7	14.1	2.8	September
of which : Unemployment benefit	5.0	3.4	-11.8	5.0	-0.9	7.8	1.1	September
Income support[c]	-3.9	0.2	-2.0	-1.1	-0.5	3.5	-0.7	September
Payments to the National Insurance Institute by the public	3.3	5.4	4.1	4.7	5.9	6.0	4.9	September

* For monthly indicators, when the last month for which data is available is September, the previous comparison period is October–March; when the last month with data available is August, the comparison period is October–February; when the last month with data available is July, the comparison period is October–January. When the last month with data available is June, the comparison period is October–December. For indicators produced quarterly, the comparison is to the last complete quarter in the previous period reviewed.

[a] Compared with previous year.

[b] The path is determined in accordance with the deficit ceiling. The figures compared with the previous period and with the corresponding period are differences.

[c] Not including income support in old-age and survivors' pensions.

SOURCE: Based on Ministry of Finance and National Insurance Institute data.

Table 1.5 Foreign Trade, Balance of Payments, and the Reserves, 2013-2014
(Seasonally adjusted)

		Change from previous quarter					April-September		
		2013		2014					
	2013[a,b]	III	IV	I	II	III	Change from previous period	Year-on-year change[b]	Last month for which data available*
	(rate of change, percent)[c]								
Trade in goods[d]									
Goods imports	-1.0	2.8	2.0	1.9	-0.9	-1.7	-0.8	3.1	September
of which: Consumer goods	9.2	5.1	-1.3	3.8	1.1	0.7	3.3	7.2	September
Capital goods	-10.9	8.9	0.9	1.7	-4.5	-2.4	-4.8	1.9	September
Intermediates	-1.4	-0.1	3.6	1.3	-0.5	-2.6	-1.2	1.8	September
Goods exports	4.6	-5.9	10.1	2.3	-6.2	-0.2	-5.3	3.8	September
of which: Manufacturing	4.5	-6.5	10.7	2.4	-5.8	-0.7	-5.0	4.1	September
of which: High-tech	2.0	-5.6	17.0	3.9	-10.0	-7.8	-11.8	3.4	September
Balance of payments				$ million					
Goods and services exports	95,994	23,607	24,606	25,271	23,950	23,763			September
Goods and services imports	91,298	22,936	23,253	23,179	22,896	23,354			September
Balance of trade in goods and services account	4,697	671	1,353	2,093	1,055	409			September
Balance of trade in current account	7,521	1,487	2,281	3,957	2,654	1,728			September
Surplus/deficit in financial account (excl. foreign exchange reserves)[b]	-5,575	-990	-5,274	-310	-2,842	-460			September
of which: Nonresidents' direct investments[b]	11,804	2,503	1,285	2,879	1,625	1,084			September
Nonresidents' portfolio investment[b]	1,755	-1,515	1,026	3,032	348	2,124			September
Residents' direct and portfolio investment abroad[b]	11,999	4,886	2,081	4,194	5,410	1,792			September
Bank of Israel foreign currency reserves, end-period[b]	81,790	79,824	81,790	85,562	86,819	86,183	0.7	8.0	September
Net external debt (percent of GDP)[b,e]	-28.6	-26.7	-28.2	-30.7	-28.1	-30.3			September

* For monthly indicators, when the last month for which data is available is September, the previous comparison period is October–March; when the last month with data available is August, the comparison period is October–February; when the last month with data available is July, the comparison period is October–January. When the last month with data available is June, the comparison period is October–December. For indicators produced quarterly, the comparison is to the last complete quarter in the previous period reviewed.

[a] Compared with previous year.

[b] Unadjusted data.

[c] The change relates to the dollar values of imports and exports.

[d] Not including ships, aircraft, diamonds, and fuel.

[e] GDP is calculated at the end-of-period NIS/$ exchange rate.

SOURCE: Based on Central Bureau of Statistics data.

Table 1.6 Selected Price Indices, the Effective Exchange Rate, Nondirected Bank Credit, Interest Rates, Yields, and the Share Price Index, 2013-2014

(rates of change, percent)

	Change from previous month						April-September		
	2014						Change from previous period	Year-on-year change	Last month for which data available*
	Apr	May	Jun	Jul	Aug	Sep			
CPI	0.1	0.1	0.3	0.1	-0.1	-0.3	0.2	-0.3	September
Consumer price index, seasonally adjusted	-0.3	0.0	0.0	0.0	-0.2	0.0	-0.5	-0.2	September
Price index of owner-occupied homes[a]	0.4	-0.1	0.1	-0.7	-0.1	1.4	1.0	6.5	September
General share-price index[b]	-2.4	0.6	0.3	-0.5	1.3	3.3	2.6	3.0	September
Real effective exchange rate[c]	0.5	-0.2	-0.9	-1.2	1.3	2.5	-0.1	-1.7	September
Nominal effective exchange rate	0.2	-0.2	-0.7	-1.0	1.2	1.9	-1.2	-3.1	September
Nondirected bank credit	0.8	0.4	0.3	-0.1	0.3	0.6	1.4	2.6	September
Effective interest rate in daily deposit auction[b]	0.7	0.7	0.7	0.7	0.5	0.2	0.6	1.4	September
Yield to maturity on 5-year notes[b]	-0.4	-0.1	-0.1	-0.1	-0.1	-0.3	-0.2	0.3	September
Risk premium[b,d]	-0.7	-2.1	-6.4	6.9	2.6	-5.1	-15.5	-33.6	September
	Change during previous 12 months[e]								
CPI	1.0	1.0	0.5	0.3	0.0	-0.3	0.1	0.4	September

[*] For monthly indicators, when the last month for which data is available is September, the previous comparison period is October–March; when the last month with data available is August, the comparison period is October–February; when the last month with data available is July, the comparison period is October–January. When the last month with data available is June, the comparison period is October–December. For indicators produced quarterly, the comparison is to the last complete quarter in the previous period reviewed.

[a] Not part of the CPI.

[b] Daily average over the month.

[c] The real effective exchange rate is the weighted geometric mean of the exchange rate of the shekel against 28 currencies, representing 38 of Israel's main trading partners (weighted by the extent of Israel's trade with those countries), adjusted for the difference between the rate of inflation in Israel and the rates of inflation in those countries.

[d] As measured by 5-year credit-default-swaps (CDS). Calculated as the difference in basis points.

[e] Year-on-year period change.

SOURCE: Based on Central Bureau of Statistics data.

Table 1.7 Indicators of Economic Development in Advanced and Developing Economies[a]
(annual change, percent)[b]

			2012	2013	2014 Projection	2015 Projection
World GDP			3.4	3.3	3.3	3.8
	Advanced economies		1.2	1.4	1.8	2.3
	Emerging and developing economies		5.1	4.7	4.4	5.0
World trade			2.9	3.0	3.8	5.0
	Advanced economies	Imports	1.2	1.4	3.7	4.3
		Exports	2.0	2.4	3.6	4.5
	Emerging and developing economies	Imports	6.0	5.3	4.4	6.1
		Exports	4.2	4.4	5.0	6.2
Commodity prices ($)	Oil[c]		1.0	-0.9	-1.3	-3.3
	Nonfuel		-10.0	-1.2	-3.0	-4.1
Inflation (CPI)	Advanced economies		2.0	1.4	1.6	1.8
Short-term interest rate (%)[d]	Dollar deposits		0.7	0.4	0.4	0.7
	Euro deposits		0.6	0.2	0.2	0.1
Unemployment rate	Advanced economies		8.0	7.9	7.3	7.1

[a] According to the World Economic Outlook, Israel is classified as an advanced economy. The advanced economies include the industrialized countries and some emerging markets.

[b] Except for unemployment and interest rates (percent).

[c] The average price of a barrel of U.K. Brent, Dubai and West Texas Intermediate crude oil in 2013 was $104.07, excluding freight costs. Estimated price for 2014 is $104.17 and for 2015, $97.92.

[d] Six-month Libor rate for US dollar deposits, and three-month Libor rate on euro deposits.

SOURCE: World Economic Outlook (IMF), October 2014.

Part 2: Broader Review of Selected Issues

Forward guidance: Experience accumulated worldwide

With the monetary interest rate in Israel approaching near zero, the Bank of Israel Research Department is examining monetary tools, including forward guidance, to serve the Bank in such an environment. This examination is not an indication of the Monetary Committee's intention to make use of any particular tool. The aim of the survey below is to present the Forward Guidance instrument, the issues raised by its use, and the experience accumulated around the world.

- In recent years, the monetary interest rate in many countries has reached near zero. In order to continue encouraging economic activity, various central banks have begun using unconventional monetary policy tools, among them forward guidance, whereby the central bank announces its future policy path.
- Forward guidance can encourage economic activity when the interest rate tool is close to being exhausted, but experience accumulated around the world shows that its use is complex. This complexity can be seen in large economies such as the US and Europe, but is particularly significant in small and open economies, since economic activity in such economies is to a large extent connected to global developments which the central bank cannot influence.

1. Forward guidance: objectives and challenges

The financial crisis of 2008 led central banks throughout the world to adopt more accommodative monetary policies, in particular by reducing the short-term interest rates. However, the hoped-for recovery was late in coming, and the central banks were required to lower the interest rate further. As a result, the interest rates in many countries have, in recent years, reached near zero, and in some have reached zero. In such a situation, the central bank's ability to reduce interest rates further is limited, and furthermore, there are doubts regarding the efficacy of such a measure.[1] Therefore, many central banks have used unconventional monetary tools alongside low interest rates to continue encouraging economic activity. These tools are not used by central banks during routine times, because they are less able to support the objectives of the banks than the monetary interest rate, or because they involve higher costs. However, when the routine monetary tool—the monetary interest rate—is nearly exhausted, the need arises to assess additional tools for encouraging activity.[2]

One unconventional tool—the use of which has expanded in recent years—is forward guidance. Among the countries that have used this tool are the US, the UK, Canada, and Sweden, as well as the European Central Bank. To understand the mechanism of this unconventional instrument, it is worth discussing the conventional monetary instrument available to the central bank—the monetary interest rate. The monetary interest rate influences the yields on the public's short-term financial assets. When the central bank sets the monetary interest rate, it influences market short-term interest rates, and through them, economic activity. When the monetary interest rate reaches near-zero levels and cannot be further lowered, actions to reduce long-term interest rates may serve as an alternative tool to encourage activity in the economy.

The long-term interest rates are set, *inter alia*, based on the expected short-term interest rate in the future. To illustrate, if commercial banks expect that the monetary interest rate will remain low over time, and they can take low-interest loans from the central bank, they will be prepared to offer the public loans for longer periods at low interest rates. Such loans, in turn, may contribute to encouraging activity in the economy. In accordance with this logic, forward guidance focuses mainly on an attempt to create expectations among the public that the monetary interest rate will remain low for an extended period, longer than what the public had initially expected, with the idea that this will lead to a decline in the long-term interest rates and to encouragement of activity in the economy.

[1] It is common practice to consider zero as the monetary interest rate's lower bound, due to the concern that the public will move to cash at the expense of deposits in banks. However, from a technical standpoint, there is nothing to prevent a negative interest rate.

[2] More discussion on unconventional monetary tools used since the recent global crisis can be found in "Unconventional monetary policy: goals and means", in Monetary Policy Report 40, January 2014, pp 25–30 (Bank of Israel).

The most important factor in the success of forward guidance is credibility. Since forward guidance is intended to affect expectations, it will be effective only if the central bank's commitment is credible in the eyes of the public. In other words, the extent of this policy tool's influence is dependent on the public's ability to believe that the central bank will adhere to the policy that it declares. However, a commitment to a future policy path may make it difficult for the central bank, since it impairs the bank's flexibility and ability to respond to unexpected scenarios in the economy: the ability to deal with short-term shocks is essential to meeting the central bank's stability targets, and anything that restricts it from this standpoint makes it difficult for it to do its work. Since the public understands this, it may place in doubt the credibility of the commitment made by the central bank, and in such a situation, forward guidance will have a reduced effect on expectations.

Credibility is inherently connected to the clarity of the message published by the central bank. A commitment to a clear and transparent policy contributes to credibility since it enables the public to evaluate the extent to which the central bank meets its commitments. Yet at the same time, such a commitment may lower credibility, since it restricts the central bank to a greater extent, and the public may think that the central bank cannot maintain, over time, the policy to which it has committed. As such, the success of the forward guidance is dependent on finding the balance between providing a clear message and maintaining the central bank's flexibility.

Another important consideration in the decision regarding the measure of clarity of the message is how the message may be received by the public. Clarity is essential so that the message is not mistakenly interpreted by the public. For instance, if the central bank declares that the interest rate will remain low for an extended period of time, the public may interpret it as an expectation on the part of the bank that throughout that period, the economy will be in recession, and low interest rates will be needed to support the economy. This may be true even though the central bank assessment is that basic forces for such a recession do not exist. Therefore, the central bank must clarify that it is maintaining low rates to compensate for the period when the lower bound prevented it from setting rates sufficiently low at that time and not because of current conditions.

The complexity involved in the need for a balance between providing clarity and transparency in the central bank's message and maintaining the bank's flexibility is reflected in the developments in forward guidance in the US. One option in providing a clear commitment is making policy contingent on the developments of macroeconomic parameters. The parameters that serve to anchor the forward guidance must be reliable indicators of the state of the economy, and must also be measurable with great precision. Beginning in December 2012, the Federal Reserve (Fed) used the unemployment rate as an anchor for forward guidance, and conditioned monetary interest rate policy on it. The Fed's Federal Open Market Committee announced that it would leave the interest rate at 0 percent to 0.25 percent for at least as long as the unemployment rate remained above 6.5 percent, inflation for one-to-two years ahead is projected to be no more than 2.5 percent, and longer-term inflation expectations "continue to be well anchored". This commitment was conditioned on transparent and measurable parameters, but the Fed was noticeably cautious in defining policy in this manner, and maintained the option of leaving the interest rate at low levels even if the unemployment rate dropped below 6.5 percent, and even if inflation expectations exceeded 2.5 percent. In fact, at the end of 2013, when the unemployment rate approached the selected threshold but many other economic parameters indicated continued weakness in the economy in general and in the labor market in particular, the Fed chose to leave the interest rate at low levels. In March 2014, the Fed updated the language of its declaration and announced that the interest rate would remain in the range of 0 percent to 0.25 percent for a period that would be determined by weighting various labor market indicators, inflation pressures and inflation expectations. The new language of the announcement did not include specific parameters or threshold levels that would guide the interest rate decisions.[3] These developments illustrate the challenge inherent in conditional guidance: It must be simple and clear, but simultaneously must provide a good representation of the state of the economy. The US experience shows that it is difficult to balance these two objectives.

Forward guidance is, therefore, mainly intended to reduce long-term interest rates, but may also contribute to increasing stability in the markets. Market volatility and uncertainty, as characterizing the global economy in recent years, are accompanied by unexpected developments, which in turn impact on monetary policy. While during periods of economic stability the public is reasonably able to set monetary policy expectations based on the central bank's previous response patterns, this becomes difficult during periods of volatility and uncertainty in economic variables. Policy measures may surprise the public and increase instability in the markets. The central bank's commitment to a defined policy may reduce the uncertainty and make it

[3] A discussion of this change in forward guidance by the Fed can be found in the speech by Fed Chair Janet Yellen in August 2014: Yellen, Janet (2014), "Opening Remarks", Labor Market Dynamics and Monetary Policy: 2014, Jackson Hole Symposium, Federal Reserve Bank of Kansas City.

possible for the public to plan its behavior according to an interest rate path that is known in advance.

Increasing certainty may also contribute to reducing the long-term interest rates. Long-term financial asset yields include a risk premium that compensates for uncertainty regarding future interest rates. When the central bank adopts measures that increase certainty in this area, it causes a reduction in the risk premium, thereby further assisting in reducing the interest rates. In other words, forward guidance may influence long-term interest rates both by influencing expected interest rates and by reducing the risk premium.

Stability was an important consideration when the European Central Bank (ECB) decided in July 2013 to begin using forward guidance. This decision was reached against the background of high volatility of yields in European markets, a phenomenon that increased following the ECB's May 2013 decision to reduce the monetary interest rate to 0.5 percent. This volatility reflected the increasing sensitivity of expectations to financial factors that are not fundamentally connected to the European economy, and it impaired the effectiveness of the monetary interest rate reductions. Aiming to stabilize expectations and improve the pass-through mechanism between the monetary interest rate and market interest rates, the ECB decided to use forward guidance even though the interest rate tool was still not fully exhausted at the time.[4]

The ECB's declaration of its intention to stabilize the volatility in the markets during a period of uncertainty may be considered credible due to the relative size of the European market and the extent of its influence on global financial markets. In contrast, in smaller economies, an attempt to set policy during a period of uncertainty may be viewed as lacking credibility, since during such a period, the central bank's flexibility is of particular importance.

2. Types of forward guidance around the world

The need to balance the many and complex elements of forward guidance has led various central banks to use this tool in a variety of ways, from soft guidance that presents a very general policy path to stronger guidance in which the central bank commits to a well-defined policy. The types of forward guidance that have thus far been used around the world can be divided into four main categories:

1. Forward guidance with no commitment to a time frame or to meeting defined targets—a general declaration of intentions regarding the policy that the central bank intends to adopt in the future, without defining clear terms for its implementation. An example of this can be found in the notice published by the Fed in 2003, in which it said that the policy formulated at that time would continue for a considerable period.[5]

2. Qualitative forward guidance conditioned on a narrative—Outlining a path for economic policy with a qualitative character, contingent on a trend of development of macroeconomic parameters. An example of this can be found in the press release published by the ECB in July 2013, in which it states that the interest rates are expected to remain low for an extended period of time, "based on the overall subdued outlook for inflation" and the general weakness in markets.[6]

3. Calendar-based forward guidance—A commitment to a certain monetary policy for a defined period of time. For example, in April 2009, the Bank of Canada lowered its monetary interest rate to 0.25 percent and announced that "the target overnight rate can be expected to remain at its current level until the end of the second quarter of 2010".[7]

4. Quantitative-parameter based forward guidance—Forward guidance of this type outlines monetary policy according to numerical values of measurable macroeconomic parameters. An example of this is the aforementioned commitment by the Fed to leave interest rates at 0–0.25 percent as long as the unemployment rate remains above 6.5 percent and inflation between one and two years ahead is projected to be no more than 2.5 percent.[8]

The complexity inherent in forward guidance did not lead only to differences between countries in how this tool was used, but also to adjustments to guidance within countries. An example of this is in the conduct of the Fed, the first large central bank to use the forward guidance tool following the

[4] More on the forward guidance policy adopted by the ECB and the considerations guiding its use of this instrument can be found in: ECB (2014), "The ECB's Forward Guidance", ECB Monthly Bulletin, April 2014, pp. 65–73.

[5] See, for example, the December 2003 press release from the FOMC: http://www.federalreserve.gov/boarddocs/press/monetary/2003/20031209/default.htm

[6] The press release published by the ECB can be found at: http://www.ecb.europa.eu/press/pressconf/2013/html/is130704.en.html

[7] The relevant notice published by the Bank of Canada can be found at: http://www.bankofcanada.ca/2009/04/fad-press-release-2009-04-21

[8] The literature sometimes refers to another type of forward guidance—a staff forecast, which refers to publishing a conditional projection by the central bank regarding the monetary interest rate. However, the staff forecast does not obligate the central bank in any way, and since this survey views guidance as a clear declaration of intent by the central bank regarding future interest rates, it does not refer to the staff forecast.

2008 financial crisis. When the Fed used it for the first time after the outbreak of the crisis at the end of 2008[9], it was the first type of forward guidance—a general declaration of intent on the part of the central bank. As confidence in the effectiveness of this tool increased, the Fed boosted the clarity of its commitments to the public, and over the years it tried all of the types of forward guidance described above. However, as noted, the Fed also gained experience in the complexity inherent in forward guidance that is anchored in the unemployment rate, and chose to return to vaguer guidance.

The ECB only began using forward guidance in July 2013, and chose to do so with tremendous caution. Thus far, the ECB has used qualitative forward guidance conditioned on a narrative, which does not impose too much commitment on the central bank. This caution is not surprising in view of the complexity of the eurozone's economy, which is made up of several countries, with different characteristics. Due to the unique character of the eurozone's economy, the ECB was forced to deal with a high number of uncertainty factors, and its actions do not always win uniform support from fiscal policy, which is set separately in each country. The uncertainty coming from many varied sources, and the central bank's high level of dependence on factors that are not within its control, make it difficult for it to commit to an unambiguous policy.

3. Forward guidance in small and open economies[10]

The main difficulty that forward guidance presents to a central bank is the difficulty in committing to a future policy in a manner that generates credibility. This difficulty is common to all central banks, and derives from the fact that monetary policy is dependent on factors that are outside the central bank's control, forcing it to constantly deal with unexpected challenges and with new information. As noted, large economies—such as the US and Europe—also have constant uncertainty with which the central bank is forced to deal, and which makes it difficult to use forward guidance. Such uncertainty exists even more in small and open economies. Openness to trade and to capital flows exposes them to a very great extent to the impact of global economic events. From the point of view of the small economy, global developments are external to the domestic economy but have a marked influence on it. Therefore, in such economies the central bank may be able to influence a relatively small group of economic variables, and is faced with tremendous uncertainty.

In small and open economies, there is tremendous importance to capital flows and to the exchange rate. In a small economy that relies to a large extent on foreign trade, the exchange rate has considerable influence on the domestic economy, and therefore constitutes a main consideration when determining the monetary interest rate. Monetary policy impacts on the exchange rate, since it determines the differential between the domestic interest rate and global interest rates—when monetary policy is restrictive relative to policy abroad, it leads to a positive differential between domestic and overseas rate, and to appreciation of the domestic currency; a negative differential between the interest rates contributes to depreciation of the domestic currency. Forward guidance in a small economy may cause the central bank to commit to an interest rate path that is not in line with interest rates abroad. Such a commitment limits the central bank's ability to deal with changes in the exchange rate by adjusting the domestic interest rate to developments in global interest rates, and may thereby expose the economy to foreign trade risks, and sometimes also to financial stability risks.

Even though the use of forward guidance is more complex in small economies, there are countries that have decided to use this tool, among them Sweden. The Riksbank (central bank of Sweden) began using forward guidance in April 2009, and in parallel with the reduction of the monetary interest rate to 0.5 percent, it announced that "the repo rate is expected to remain at a low level until the beginning of 2011". As a result of this announcement, interest rate expectations were actually revised upwards, apparently because before the declaration, the public expected a significant interest rate reduction in the future, but it interpreted the notice by the central bank as a declaration that the interest rate would be kept at 0.5 percent for a year and a half. In July 2009, the Riksbank reduced the monetary interest rate to 0.25 percent, and declared that the repo rate "is expected to remain at this low level over the coming year". This notice led to a downward revision of immediate-term expectations, but expectations for terms of close to one year were only slightly influenced by the declaration. It is possible that this moderate influence derived from the fact that the interest rate path published by the Riksbank was different from the path that the Fed published during the same period. This is consistent with the argument that global data influence expectations in a small and open economy, and when the central bank's declaration is not in line with these data, it may have a smaller impact on expectations. In the following years, the Riksbank continued to use forward guidance. In October 2014, the Swedish central bank reduced the interest rate from 0.25 percent to 0 percent. In the press release,

9 The Fed used guidance before the crisis as well.

10 A broad survey regarding forward guidance in small and open economies can be found in: Misgav, Alon (2014), "Forward Guidance in Small, Open Economies", BA Seminar Paper, PPE, Faculty of Social Sciences, Hebrew University of Jerusalem, Advisor: Dr. Edward (Akiva) Offenbacher (unpublished).

it was noted that even though real economic data were encouraging, inflation in Sweden remained low, which made it necessary to reduce the interest rate. It was also stated that the interest rate "needs to remain at this level until inflation clearly picks up. It is assessed as appropriate to slowly begin raising the repo rate in the middle of 2016".

The Bank of Canada also gained experience in calendar-based forward guidance. Even though Canada's economy is not considered small, it is influenced to a great extent by the American economy, and the issues facing the Bank of Canada are therefore similar to those facing the central bank of a small and open economy. As noted, the Bank of Canada reduced the monetary interest rate in April 2009, to a level of 0.25 percent, and in parallel announced that it would leave the interest rate at that level until the end of the second quarter of 2010. Toward the end of that period, the Bank of Canada announced that in view of the publication of encouraging data, "the need for such extraordinary policy is now passing, and it is appropriate to begin to lessen the degree of monetary stimulus". And in fact, in June 2010, the Bank began to increase the interest rate, and in September 2010 it reached 1 percent. Since that experience, the Bank of Canada reduced its use of forward guidance and moved to vaguer policy declarations, and in October 2012, it stopped the use of this policy instrument altogether. An examination of the interest rate expectations derived from Canadian capital markets indicates that the Bank of Canada's April 2009 declaration had a significant impact, reflected in the downward revision of expectations. However, a few weeks later, interest rate expectations increased, apparently as a result of the publication of encouraging data regarding the US market. This increase in expectations reflects the complexity inherent in forward guidance in an economy that is to a large extent influenced by economic developments in other economies.[11]

As such, it seems that there is little experience with forward guidance in small and open economies, and it resulted in partial success. The main effect of forward guidance in these countries was reflected in very short-term interest rates, and it mostly wore off in a short time.[12] What all the experiences in the small economies had in common was that the policy paths committed to by the central bank did not relate to global influences. Such commitments, even if considered credible in the immediate term, lost their power over slightly longer terms, apparently due to uncertainty regarding the central bank's ability to conduct monetary policy independent of global developments. The effect of the declaration was even weaker once new information about global developments considered relevant to the domestic economy was published. This information increased the concern that the central bank would be forced to deviate from its original commitment. Monetary policy's dependence on global developments is an issue that is common to all economies, both small and large, but it is particularly significant in small economies since they rely to a greater extent on foreign trade.

It is likely that the problem can be solved through forward guidance that would include reference to interest rate differentials vis-à-vis the large economies or the exchange rate, in addition to reference to domestic parameters. Thus far, no attempt has been made to use this type of guidance. However, it may be relevant in view of the issues raised by forward guidance in small and open economies, and particularly in view of the need of such countries to deal with changes in the exchange rate and with interest rate differentials vis-à-vis the large economies. A commitment that also refers to interest rates abroad or to the exchange rate could help the central bank deal with the risks concerning foreign trade, a component that, as stated, is of particular significance in small and open economies. Furthermore, such a commitment may be considered by the public to be more credible, since it indicates that the central bank is cognizant of its dependence on the global economy.

The types of forward guidance used around the world are mainly intended to reduce longer-term interest rates. Forward guidance that is contingent on an interest rate differential or on the exchange rate has a slightly different character, and may impact activity mainly via the exchange rate channel. As noted, in small and open economies, the exchange rate has a large effect on the domestic economy, and forward guidance that operates via this channel may therefore be effective in encouraging activity. To illustrate, if the central bank announces that the domestic interest rate will be lower than interest rates worldwide for a marked period, its announcement may weaken the domestic currency in the present. This depreciation may spur exports, and thus economic activity and inflation.

4. Conclusion

Most of the advanced economies have been characterized since the global crisis by a low interest rate environment,

[11] A survey of studies regarding the influence of forward guidance on expectations in Sweden and Canada can be found in: Woodford, Michael (2012), "Methods of Policy Accommodation at the Interest-Rate Lower Bound", from the 2012 Jackson Hole Symposium: The Changing Policy Landscape, Federal Reserve Bank of Kansas City.

[12] It is worth noting that it is difficult to estimate how one-time events—such as a surprise announcement from the central bank—affect expectations. First, the estimation of expectations is complex, and the indices used for this purpose are generally accompanied by noise. Second, expectations are influenced by many factors, and the more the date of the central bank's announcement recedes, the harder it is to isolate the effect of the announcement on expectations.

which has led to the expanded use of unconventional monetary tools, including forward guidance. Forward guidance makes it possible for a central bank to continue encouraging activity in the economy even when the conventional policy tool—setting the interest rate—is exhausted. However, it seems that the forward guidance instrument, similar to other unconventional monetary tools, is not free of problems. This may explain why it was used only sparingly before the recent global crisis, and why central banks that chose to use it did so cautiously. The complexity inherent in the use of forward guidance can be seen in both large economies and small economies, but is particularly significant in small and open economies because they are based to a large extent on foreign trade. It is possible that the difficulty that is unique to small and open economies can be solved through forward guidance that includes reference to global interest rates or to exchange rates, in addition referring to domestic parameters. Though forward guidance of this type has not been attempted so far, it seems that there is room to try it since it may contribute to the success of the use of this policy tool.

First-time homebuyers: Changes in purchasing patterns between 2002 and 2012, by income level

- The price of homes purchased by salaried first-time homebuyers increased more rapidly than the buyers' disposable income between 2002 and 2012. As a result, the number of working years necessary for a household to purchase a home increased.
- The rate of home ownership among those aged 25–40 declined during the examined decade.
- First-time homebuyers, at all income levels, purchased larger homes over the reviewed period.
- The share of homes purchased in the periphery increased in recent years, both among first-time homebuyers and among other buyers. This development took place to the same extent in all financial statuses of first-time homebuyers, and is consistent with the relative increase in home prices in the center of the country.
- The median age of first time homebuyers increased by 1–2 years between 2002 and 2012, reaching about 32. The increase occurred among buyers belonging to the upper deciles of the distribution of wage income.

In recent years, home prices in Israel have increased rapidly, while households' disposable income has increased more slowly. This review assesses various aspects of home purchase affordability. It focuses on young couples—which are defined in this survey as households purchasing a home for the first time—since they are more exposed than others to increases in home prices.[1] In contrast to those upgrading their home, first-time homebuyers do not own a home, and are therefore not protected—even partially—from price increases such as those that have taken place since 2008. In addition, their income is lower, on average, than that of households that own a home, and they have higher child care expenses.

The database upon which the analysis is based was created by merging the residential home transactions file (real estate price file) and a random unidentified sample of 10 percent of salaried employees and their spouses, which contains information on their salaries and main demographic characteristics. These two sources of information were obtained from the Israel Tax Authority, and made it possible to reliably assess the characteristics of homebuyers at a high level of detail. While the sample of salaried employees does not include information on households without wage earners, those that are self-employed, or income from capital and transfer payments, the vast majority of households purchasing a home have income from wages, and income from capital and transfer payments constitutes only a small part of their total income. In addition, the database lacks detailed socio-demographic information and information on how the home purchase is financed.

The first part of the survey presents purchase affordability among the young couples. The second part assesses the differences in affordability between young couples of different financial status. The third part expands the concept of affordability that appears in the first section—relating to the size of the home, its location, and the age of the buyer—and based on this concept, it analyzes purchase affordability among young couples.

1. Purchase affordability among young couples

One of the ways to measure home purchase affordability is by the median number of years of disposable income that

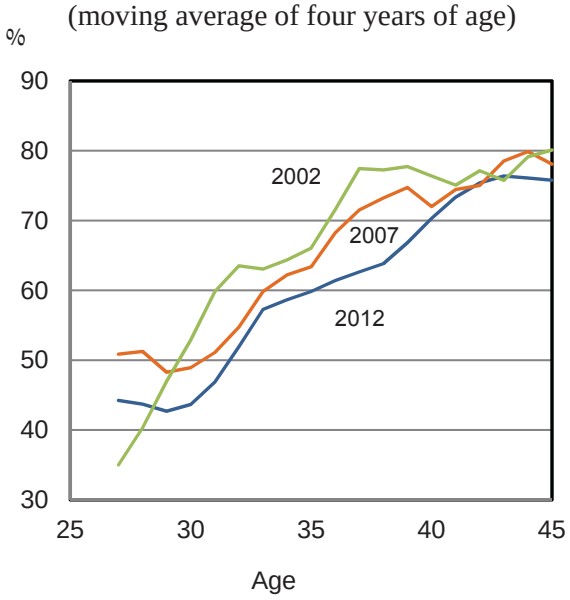
[1] For more on this issue, see Friedman, Y. and S. Ribon (2014), "Whence the money?—Home purchases and their financing: An analysis using Household Expenditure Survey data, 2004–2011", Bank of Israel, Periodic Papers 2014.05; Bank of Israel (2014), "Housing affordability: Home prices and rents across districts in Israel, 2004–2012", in *Recent Economic Developments*, 137, October 2013 to March 2014; Ben-Naim, G. (2012), "First-time homebuyers in the past decade—characteristics and trends", *Israeli Tax Quarterly*, 131 (33), pp. 63–83 (in Hebrew).
A discussion on rental affordability can be found in Bank of Israel (2014), and in Brender, A. and M. Strawczynski (2014) "Government Support for Young Families in Israel," Bank of Israel, *Discussion Papers Series*, 2014.02.

are necessary for a household to purchase their residence.[2] Accordingly, we will describe the households that are at the focus of this survey, the development of their income, and the prices of the homes they have purchased. We will then present the affordability index that is derived from this.

The young couples—which here include, as mentioned, the households purchasing a home for the first time—constitute about one-third of homebuyers. According to the Central Bureau of Statistics Household Expenditure Survey, the percentage of young households that own a home declined in the examined decade. By way of illustration, and as shown in Figure 1, in 2002, about 66 percent of 35-year-olds surveyed owned a home, and in 2012, that percentage had declined to about 60 percent.

Regarding the income of young couples from salaried employment, the median net monthly family income[3] increased by about 63 percent in nominal terms during the reviewed period, while among all salaried employees, it increased by about 29 percent (Figure 2).[4] The gap is the result of the fact that homebuyers are highly represented among salaried employees with good financial status, and over the years the wages of this group increased more rapidly than that of all salaried employees, particularly since 2007. This phenomenon shows that the income of households that expanded—due to marriage and birth—increased more rapidly than the income of other households.[5] In addition, the salaries of first-time homebuyers in all decile groups increased more rapidly than the general average of the young wage earners in each group, a phenomenon that attests to the strengthening of the financial status of the buyers, relative to those who did not buy a home.

Figure 1
Home ownership by age, 2002, 2007 and 2012
(moving average of four years of age)



The prices of homes purchased by young couples, after adjusting for quality[6] (meaning after taking into account characteristics such as the size and location of the home), increased by an aggregate of about 72 percent during the surveyed period, and the increase took place—almost completely—from 2008 onwards. It should be noted that until 2010, raw home prices moved in tandem with quality-adjusted home prices—evidence of the fact that on average the quality of the homes purchased by young couples during this period did not change. In 2011, there is a deviation from the trend, which shows that the quality of the homes declined. But it seems that in 2012, there is a correction and a return to the same home quality.

Purchase affordability—the median ratio between the price of homes purchased by young couples and the number of years of disposable income of those couples—improved between 2002 and 2008 from 6.1 to 5.1 years. In the following two years, it declined sharply—with the increase in home prices—and then stabilized at about 6.4 years (Figure 4 below).

2 As opposed to the custom to use the ratio between the average price of homes purchased and the average income of all households (whether they have purchased a home or not). There is a conceptual discussion of the various measures of housing affordability in Bank of Israel (2014).

3 The net annual salary of those sampled and their spouses, divided by 12. A distinction should be made between this wage and the wage per employee post. The latter equals the gross wage per month of work, while the wage here takes into account the number of working months in a year. We emphasize that the database identifies the spouse only in a case where the sampled individual is married, while in the Central Bureau of Statistics surveys, the household also includes spouses that are not married (as well as other adults).

4 The calculation was made on the wages of households that purchased a home for the first time, in the year in which they purchased their home, compared with the wage of all salaried employees in that year, including those who did not purchase a home.

5 A discussion of the differences between "young parents" and other salaried employees appears in: Brender, A. and M. Strawczynski (2014).

6 The changes in home prices were calculated hedonically. This method takes into account the size, age and location of the home, similar to the method used by the Central Bureau of Statistics to calculate the Index of Home Prices (which is not part of the Consumer Price Index).

Figure 2
Home prices and median net family income from salaried work, 2002–12
(current prices, Index 2002=100)

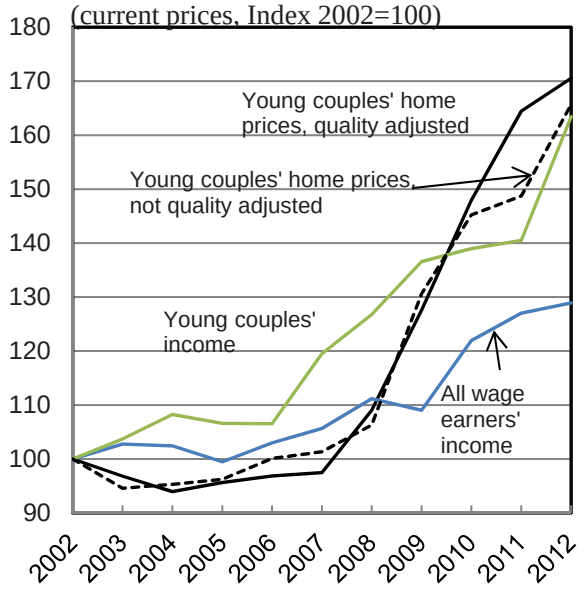
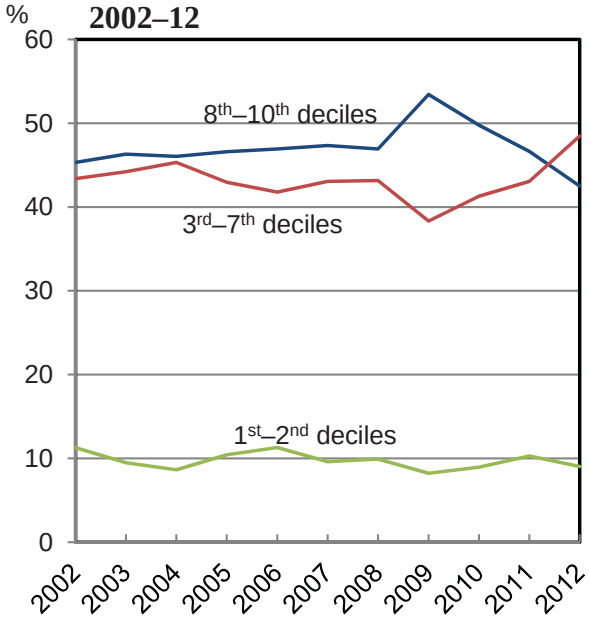


Figure 3
Income deciles' share of all young couples who purchased a home, 2002–12



2. Differences in affordability between young couples of different financial statuses

In order to assess the home purchasing patterns by financial situation, we attributed the households to deciles by disposable income from salaried work per equivalized individual in all households (including those that did not purchase a home). It should be emphasized that this is income from salaried work during the current year, and not income over the life cycle. Therefore, the lower deciles also include salaried households with income during the current year that, while low, will increase in the future (for instance, young people at part-time or temporary jobs). The results are not sensitive to the way in which the population was divided into decile groups.

Figure 3 shows the portions constituted by the various deciles among young couples in 2002 to 2012.[7] The top three deciles are over-represented among homebuyers: While their share of the salaried population is 30 percent, among homebuyers it comes close to 50 percent. In parallel, the two lowest deciles are under-represented, constituting just 10 percent of homebuyers. (In total, just 1 percent of households in these two deciles purchase homes in any year.) The distribution of home purchases by deciles was relatively stable until 2009. Thereafter, an interesting phenomenon took place: Even though purchase affordability declined among the intermediate deciles, their share of total purchasers increased by a not-inconsiderable amount—about 5 percentage points—at the expense of the share of purchasers from the upper deciles. A possible explanation of the change in trend concerns the easy terms of financing of the mortgages taken out during that period: It is possible that among the intermediate deciles, these terms were a very significant consideration in the decision to purchase a home.

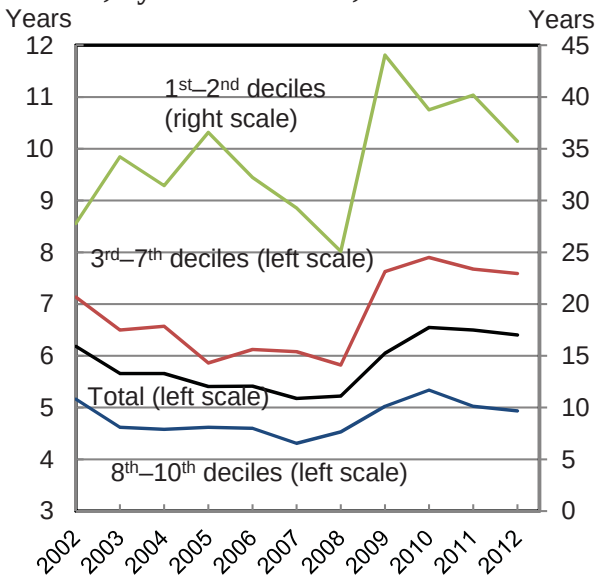
Figure 4 shows that there is a negative correlation between income and the median number of years of net income required for young couples to purchase their home. It should be remembered that even though transfer payments between individuals (for instance from parents to children) in many cases—and apparently in all deciles—serve as a source of financing for the purchase of a home, there is no reliable information in Israel on such transfers, which are apparently one of the factors explaining how the median number of years

[7] When examining the distribution of ages of the salaried employees who purchased a home for the first time, we find that after cutting off 10 percent from each side of the distribution—meaning the youngest and oldest people—we are left with an age range of 24–45. Therefore, we calculated the income deciles among salaried employees in this age range (homebuyers and others), and from here on, we will relate only to this group.

of income in the lower deciles can be so high.[8] The index of purchase affordability among young couples is similar to the index among all salaried buyers, although the income of the former is lower. As we will later see in detail, this means that young couples purchase relatively inexpensive homes—both smaller and located in less desirable areas.

Since 2009, there has been a decrease in purchase affordability among young couples, particularly in the intermediate deciles: While 5.8 years of income were required for a purchase in 2008, 7.6 years were required in 2012, an increase of 30 percent. In contrast, the upper deciles required 4.5 years and 4.9 years respectively, in order to finance the purchase of a home—an increase of 9 percent. In other words, purchase affordability declined to a greater extent among the intermediate deciles.

Figure 4
Median number of years of income required for young couples to purchase a home[a], by income deciles, 2002–12



[a] Net family income from salaried work.

[8] It should be remembered that homes for investment purposes are sometimes recorded, for tax considerations, in the name of relatives that earn low wages.

3. Purchase affordability among first-time homebuyers by the expanded affordability concept

As mentioned, in the first part of the survey, we measured purchase affordability by the median number of years of disposable income necessary for a household to purchase its home. However, this index does not take into account additional aspects of the ability to purchase a home. By way of illustration, the price of a home is dependent on its physical characteristics (size, age and so on), and its location relative to high demand areas. When homebuyers compromise on the physical characteristics or location of the home in order to lower its price, it basically constitutes a worsening of affordability. The same is true of a delay in the timing of the purchase due to a lack of means with which to finance it. These aspects are the focus of the third part of the survey.

However, before turning to these aspects, another very important aspect of the ability to purchase a home should be emphasized—the burden of financing, both through a mortgage and through equity, including transfers from other individuals (such as from parents to children). Friedman and Ribon (2014) researched this aspect based on the Household Expenditure Surveys, and did not find any growth in recent years in the share of mortgage repayments out of disposable household income. This finding is explained by some increase in equity, a decline in the average interest rate on mortgages, the extension of the repayment period, and some increase in real household income.

Size of the home

Estimations[9] show that the area of the homes (in square meters) purchased by young couples from the upper deciles was about 11 percent larger than those purchased by young couples from the intermediate and lower deciles, and the number of rooms was 8 percent larger. Over time, there was a slight increase in the size of the home, but there were no differences between the deciles from this standpoint. Home area per person increases with income—increasing by about 10 percent between 2002 and 2012, because the area of the home increased and the number of people in the household decreased. Home area per person increased in the intermediate deciles more rapidly than in the upper deciles.

[9] Estimations for the years 2002–2012 of the home area (number of rooms) as a function of the following explanatory variables: dummy variables for deciles, number of people in the household, dummy variables for years, and fixed effect for the community. For some, interactions between the deciles per year were added. Similar estimations of home area per person were also made, in which the number of people was deleted from the explanatory variables.

These trends show that even though purchase affordability declined in recent years, particularly among the middle class, the physical residential conditions of young couples who purchased a home did not worsen, and developed similarly to the conditions for all homebuyers.

Location of the home

The quality of housing services depends, inter alia, on the location of the home. Where home prices increase, some households that would prefer to reside in high-demand areas—particularly households with limited means—are forced to find a housing solution in a more distant location. This phenomenon may be evidence of worsening purchase affordability, and may lead to a deepening geographic separation by income levels.

Home prices throughout Israel developed differentially during the surveyed period: Prices (adjusted for quality, in accordance with the Central Bureau of Statistics definitions) in the center increased by an aggregate amount of 95 percent, while those in the periphery increased by 70 percent.[10]

Home prices in the center increased, therefore, at a more rapid pace than home prices in the periphery. Alongside this, from 2010 onwards, first-time homebuyers in the periphery increased as a share of all first-time homebuyers, from about 20 percent in 2009 to about 25 percent in 2012.[11] A similar phenomenon took place among all salaried homebuyers. However, in most districts, there was no material change in the mix of deciles of first-time homebuyers. A similar picture emerges when looking at the mix of deciles of first-time homebuyers within neighborhoods of various socioeconomic rankings.[12]

In general, home prices are lower the greater the distance from Tel Aviv. When estimating the distance between homes purchased by young couples and the city (within a range of up to 30 km from the city)[13], we find that a home purchased by a couple from the highest deciles was, on average, about 10 percent closer to Tel Aviv than a home purchased by a couple from the intermediate and lower deciles. The prices of homes purchased by young couples in Tel Aviv increased by more than 100 percent during the study period, while in the center district, they increased by 85 percent. In contrast, there was only an insignificant increase over time in the average distance from Tel Aviv, and there were no differences between statuses from this standpoint.

In summation, between 2002 and 2012, the rate of homes purchased by young couples in the periphery increased, but this rate did not change relative to total buyers. Furthermore, there was no evidence of a deepening geographic separation between the income deciles among young couples.

Purchase age

Another aspect of purchase affordability is the age at which a home is purchased for the first time. The median age increased during the reviewed period by 1–2 years, and reached about 32—due to the increase in the purchase age in the upper deciles—while the median marriage age increased by less than one year (and by about one year among the upper deciles), and the salaried employee population group almost did not age. This means that the age at which a home is purchased increased in the upper deciles and did not change in the intermediate deciles, even after adjusting for the increase in the age of marriage and the aging of the salaried population. It should be noted that the timing of marriage may be affected by young couples' ability to purchase a home.

[10] Ben-Tovim, N., Y. Yakhin, and Zussman, N., (2014), "Measuring home price variation using repeated sales methodology", Bank of Israel, *Periodic Papers*, 2014.1

[11] Another factor that may have explained the move to the periphery is the increase in the supply of homes there relative to the center. However, the area of homes, the construction of which was completed in the periphery, compared to the area in the center, remained almost unchanged during the surveyed period.

[12] Since the socioeconomic ranking of the neighborhood depends to a great extent on the income of its residents, we used the rating at one point in time—the Central Bureau of Statistics socio-economic ranking for statistical areas according to the 2008 Census.

[13] Estimations for the years 2002–2012 in which the explanatory variables are dummy variables for decile, the number of people in the family, and dummy variables for years. Some of the estimations include interactions between deciles per year.

Fixed capital formation in the Israeli healthcare system

- Fixed capital formation in the Israeli healthcare system, as a share of total healthcare expenditure, was lower in the past decade than in the previous decade, and lower than the OECD average.
- The low investment over the years has led to low capital stock in the Israeli healthcare system relative to worldwide levels, which is reflected in the lower number of general hospitalization beds and scanning devices, for instance. The intensive use of the existing infrastructure partially compensates for the lack, and helps Israel achieve good healthcare results at low cost, but it negatively impacts the level of service to the patient and is reflected in overcrowding in the wards, non-standard service hours, and long wait times.
- The share of public financing of the investment in the healthcare system, which was more than half of investment in 1995, declined to just one-third of investment by 2006. Since 2007, the share of public financing began to increase, but most of the financing of investment still comes from private sources, including donations from Israel and from abroad, and from the revenues of the business sector and of healthcare associations in the government hospitals.
- Between 2008 and 2012, about one-quarter of total investment in hospitals in Israel was made in private hospitals—a rate higher than their volume of infrastructure, which will make it possible to expand the relative share of privately financed service provision in the future as well.

Fixed capital formation in the Israeli healthcare system totaled NIS 2.5 billion in 2011, or 3.6 percent of total national healthcare expenditure. Investment in the system makes it possible to renovate and replace existing buildings and equipment that have deteriorated or become outdated, to expand the future output of the system (in order to provide services to the population that is expected to grow and age, and in order to respond to the increase in demand due to the increase in the standard of living), and makes it possible to purchase equipment in order to integrate new medical technologies. This box reviews the fixed capital formation in the Israeli healthcare system in the past two decades, assesses the methods of financing this investment and the institutions in which it is made, and presents Israel's position in relation to the rest of the world concerning the flow of investment and concerning the current capital stock.

1. International comparison of fixed capital formation in healthcare systems

The rate of annual fixed capital formation in the Israeli healthcare system was volatile in the past decade, and was 3.3 percent of total national healthcare expenditure on average between 2002 and 2011 (Figure 1). This rate is low both compared to the rate of investment in Israel in the preceding decade (4.3 percent), and compared to the average in 21 of the OECD countries (4.5 percent in the past decade).[1] The gap in the rate of healthcare investment between Israel and the OECD countries widened in particular between 2002 and 2007, due to the decline in the volume of investment in Israel, but narrowed in recent years, mainly due to the halt in investments in the OECD countries following the financial crisis. Since total national investment in healthcare in Israel is low by international comparison, the absolute gap between Israel and the OECD in healthcare investment per capita is even larger (Figure 2). In 2010, per capita investment in Israel amounted to $71 (in PPP terms[2]), about half of the average investments in the 21 OECD countries examined ($139).[3]

A number of factors may explain or justify the low rate of investment in healthcare in Israel, compared to the OECD. First, the volume of investment required derives from future needs at any point in time. Thus, it is possible that the aging of the population in the OECD countries in recent decades encouraged those countries to prepare for higher demand for healthcare services in the future[4], leading to higher investment in the system. However, the rapid growth of the population in Israel, which was higher than that of the

1 The OECD average is a simple average of the 21 countries for which there are consecutive data from 1990 to 2012 (excluding Israel): Australia, Austria, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, South Korea, Netherlands, Norway, Poland, Spain, Sweden, UK and US. Comparing Israel to a larger number of countries, for which there are data in 2011, does not change the picture presented in the box.

2 The PPP exchange rate used reflects the differences between the countries in *GDP* prices, and not in healthcare sector prices alone or in the prices of healthcare investment products.

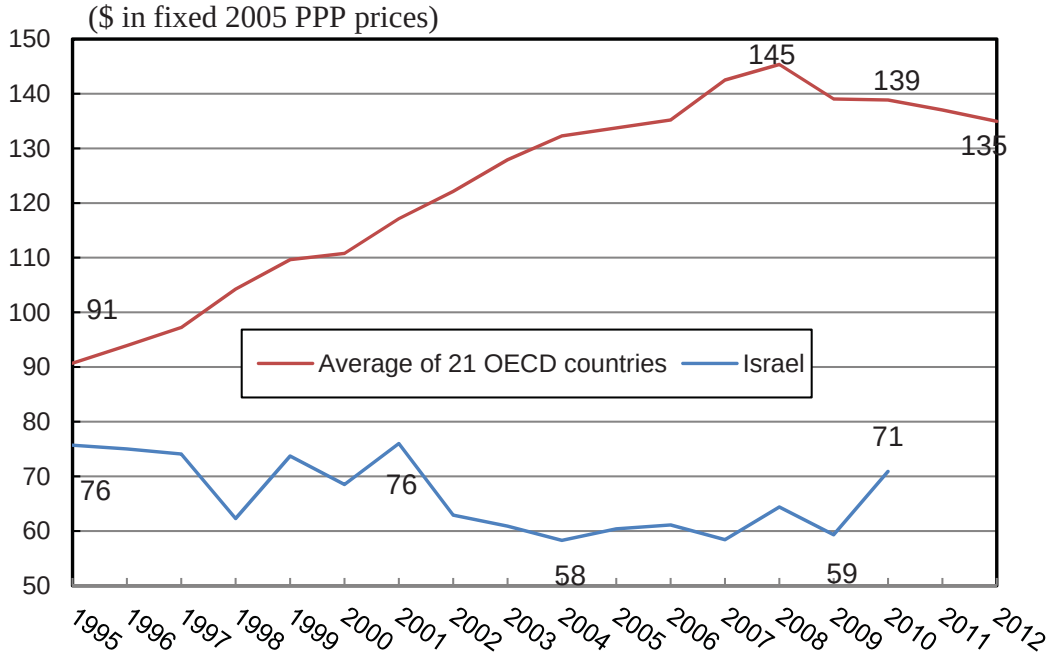
3 Even after equivalizing per capita investment by the composition of ages in the population in 2010, per capita investment in Israel remained lower than in many countries. In the absence of data on the per capita *investment* profile, we used the *total healthcare expenditure* profile (in 10 countries) for the calculation, as appears in Recent Economic Developments 135.

4 The lifespan of some components of investment (for instance, devices and equipment) is not particularly long, and their volume is derived from needs in the near future, rather than in many years. Other components (such as construction) are affected by long-term needs.

Figure 1
Fixed capital formation in the healthcare system, as a share of national healthcare expenditure, Israel and average of 21 OECD countries, 1990–2012

SOURCE: OECD.

Figure 2
Per capita fixed capital formation in the healthcare system, Israel and average of 21 OECD countries, 1995–2010
($ in fixed 2005 PPP prices)



SOURCE: OECD.

OECD throughout the entire period[5], also contributed to increased future healthcare needs of Israelis at any point in time, and should have led to larger investments in healthcare. Moreover, in recent years, the population in Israel has also started to age at a more rapid pace that characterized the OECD countries.[6] Therefore, even if this justification was valid in the past, it is no longer valid.

Second, the low investments may derive from a slow and more carefully considered pace of purchases of equipment required for the assimilation of new technologies. The slow and gradual pace of adopting innovative medical technology may negatively impact the level of medical service to Israeli citizens compared to the other advanced economies, but may also assist in a selective and cost-effective assimilation that is focused on technologies with proven benefit and efficiency.[7]

Third, low investment may derive from much greater reliance on manpower[8], and particularly from the relative strength of community medicine in Israel. This sector requires lower capital investments than hospitals, assists in the prevention of illness and stopping the decline in the conditions of chronic patients, and reduces the need for hospitalization.

Fourth, low investment may reflect the choice of policy makers, who prefer to maintain relatively high efficiency and to use limited capital more intensively, even at the cost of negatively impacting ease of service to residents. (See below for more on this.)

The low level of investment in the healthcare system in Israel is made possible by close government control of the scope of such investment: The government directs the investment from the state budget, approves the development plans of the health funds, requires previous approval for any construction or expansion of hospitals (in the business sector as well)[9], and requires obtaining a license for any special medical instrument (such as CT and MRI scanners). This policy (which also exists to some extent in other countries[10]), helps maintain the efficiency of the Israeli healthcare system (where alongside low expenditures, healthcare results in Israel are relatively good[11]), but its tremendous rigidity harms the level of service to residents, leads to a lack of infrastructure, and may make it difficult for the healthcare system to deal in the future with the challenge of an increasing and aging population. It should be noted that the expected shortfall in medical manpower, which to a large extent reflects low investment in training physicians, will make it difficult to meet this challenge, and will require the development of additional training frameworks.

2. Financing investment in the healthcare system

In the past two decades, the rate of public financing of investment in the healthcare system has declined, and the rate of private financing from Israel and abroad (meaning financing through donations, business sector income, and income of healthcare associations operating alongside the government hospitals) has increased (Figure 3). While in 1995, slightly more than half of investment was financed publicly, this rate declined to less than one-third of total investment in 2006. The scope of public financing increased again between 2008 and 2010, in contrast with other countries in which the financial crisis led to cuts in healthcare

5 Between 1990 and 2012, the average population growth rate in Israel was 2.6 percent per year, compared to annual growth of 0.7 percent in the 21 OECD countries.

6 The percentage of those aged 65 and higher in the 21 OECD countries was 16.3 percent of the population in 2011—3.1 percentage points higher than the percentage in 1990. In Israel, this percentage increased by just 0.9 percentage points since 1990, to 10 percent of the population in 2011. However, in the next 20 years, this percentage is expected to increase in Israel by another 4.6 percentage points (according to the Central Bureau of Statistics interim projection).

7 Chandra and Skinner (2011) bring, as an example of the rapid and apparently wasteful adoption of technologies, the pace of adoption of proton beam therapy technology for prostate cancer in the US. Even though the new therapy is more than twice as expensive as the existing therapy, and regardless of the lack of scientific evidence that its results are better, many (competing) centers for this therapy were established in the US by 2013, at great investment. In Israel, a professional committee that advises the Ministry of Health recommended not to establish such a center (the cost of establishing a single center was estimated at $100 million) and, as an alternative, to fly to the US the few patients for whom this therapy apparently would help. See: Chandra, Amitabh and Skinner, Jonathan S. (2011), "Technology growth and expenditure growth in health care", NBER Working Paper No. 16953.

8 For the most part, capital and labor are complementary, rather than alternative, means of production in the healthcare system. However, there is some replacement between the community health system and the hospitals, where the capital intensiveness in the community is lower. We note that among the human capital, there is also some replacement between the professions (for instance, between physicians, nurses, technicians and administrative staff).

9 The Committee for Strengthening the Public Health System (the "German Committee") recommended requiring approval for the establishment of intermediate surgical clinics as well, and to improve the Ministry of Health's control over the scope of infrastructure in the private healthcare system.

10 These countries require obtaining a license (Certificate of Need – CON) before certain investments are made in the healthcare system, out of concern that increased capacity may cause actors in the system to encourage excess demand (supply-induced demand).

11 For instance, life expectancy in Israel is higher than the OECD average (and particularly high among men), and the improvement in life expectancy since 1990 was identical to the improvement among other advanced economy OECD members.

Figure 3
Total fixed capital formation in the healthcare system (2010 prices), and the share of public and private financing of fixed capital formation in the healthcare system, 1995–2010

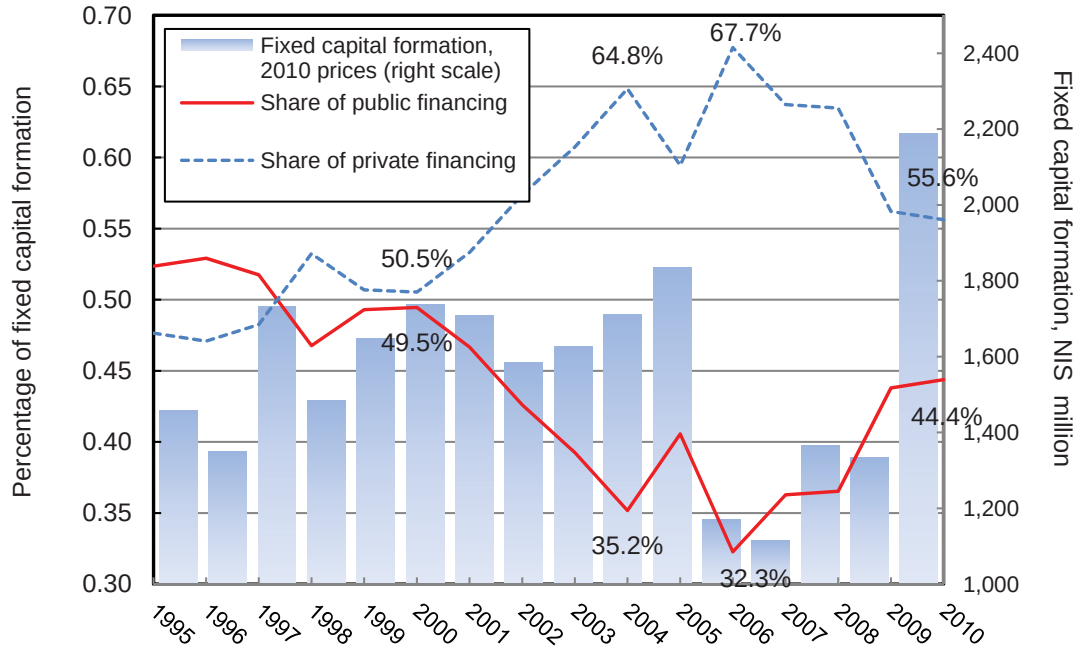
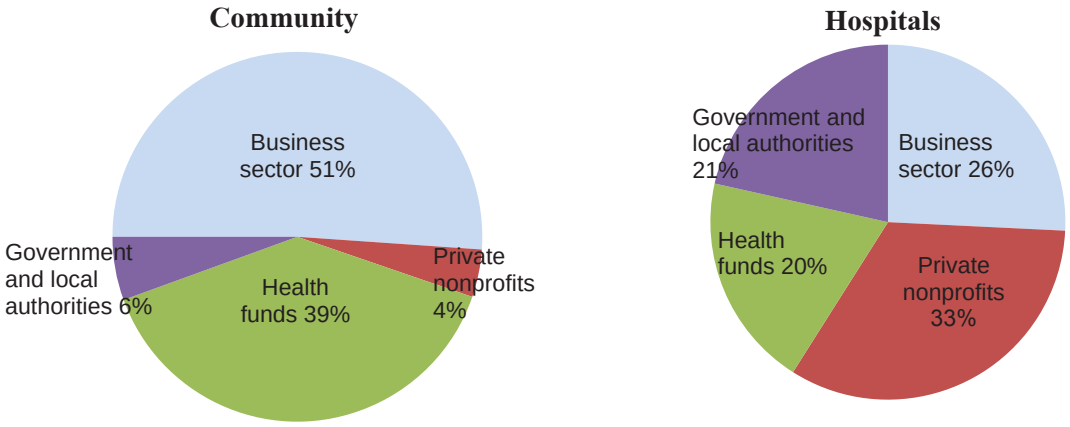


Figure 4
Distribution of investment in hospitals and in community medicine, 2008–10, by type of ownership



investment.[12] In 2010, there was growth in all components of financing, including in the volume of donations from abroad which, as a result of the crisis, had declined by 30 percent (in shekel terms) in 2009. Notwithstanding the increase in public investment in healthcare following the crisis, it continued to constitute less than 50 percent of total fixed capital formation in the health system, and remained low by international comparison. In 2010, public investment in healthcare in Israel totaled $31 per capita, compared with an average of $82 in the OECD countries[13] (PPP dollars).

Following the rapid growth in the Ministry of Health's development budget in 2008–2010 (a real annual growth rate of 30 percent), this budget again declined in the past three years (at an average annual rate of 8 percent), and totaled NIS 470 million in 2013. About two-thirds of the development budget is transferred to government entities, and was divided in 2013 among construction (85 percent) and equipment (13 percent).[14] In 2012, the state budget financed about 70 percent of fixed capital formation in the government hospitals. The rest of the investment in these hospitals was financed from the income of the healthcare associations operating alongside the hospitals.[15] While financing from the state budget is divided among the hospitals in line with each hospital's share of activity, the large hospitals (in the center of the country) generally enjoy particularly large financing from the sources of their healthcare associations, so that in the end, the smaller hospitals (in the periphery) have smaller fixed capital formation (relative to their share of activity), and the equipment they use is, for the most part, more outdated.[16]

3. Investment targets in the healthcare system—hospitals compared to community medicine and the public sector compared to the business sector

The past decade's decline in the rate of fixed capital formation as a share of national healthcare expenditure was reflected in both the decline in the volume of investment in hospitals and the decline in the volume of investment in community medicine (clinics and institutes outside the hospitals). The ratio between these investment targets remained stable since 2001: Investment in hospitals is about three-quarters of total investment, with the rest being directed toward investment in community medicine.[17]

Between 2008 and 2010, investment in private hospitals (those owned by the business sector) comprised 26 percent of total investment in hospitals in Israel (a rate which was affected by the particularly high level of investment in the private sector in 2009[18]). This rate is high in relation to the size of the private hospitals (which held 3.3 percent of total curative (acute) care beds in Israel, and 12 percent of operating rooms[19]).The large investment in the private

12 In most European countries, public financing of investment in hospitals declined significantly due to the global financial crisis: investment plans were abandoned, and there was a slowdown in the actualization of upgrade plans for existing equipment. For details, see: Thomson, Sarah et al. "Economic crisis, health systems and health in Europe: impact and implications for policy", World Health Organization, 2014.

13 The countries appearing in this survey, other than Poland, the UK and the Netherlands, for which data on the financing of investment is lacking.

14 Investment in construction—Budget items 6701 (construction of hospitalization wards) and 6702 (construction of service buildings). Investment in equipment—Item 6704. Two percent of the budget was directed to a central computerization project (Item 6705).

15 These investments are classified as investments from private financing, even though only about one-quarter of the healthcare associations' income (in 2012) came from private sources (for instance: donations, sales of medical tourism services, and sale of services outside the Health Basket). The rest of the income came from the sale of services to the health funds—the source of whose money is public. However, this classification almost does not change the general picture. See "2012 Financial Report, General and Government Medical Centers", Ministry of Health.

16 This is raised by the depreciated cost data of the equipment at government hospitals, which appear in the 2012 financial report. The State Comptroller (in Annual Report 61B for 2010) warned against relying on money from donations (through the healthcare association or through "Friends of" organizations) for financing the development of infrastructure at the hospitals, and even determined that, "in recent years only hospitals that successfully raise donations (mainly the large hospitals in the center of the country) are adding buildings and institutes and improving existing buildings."

17 The State Comptroller's Report (Report 63C for 2012) determined that due to the lack of planning and due to impediments imposed by the Ministry of Health, the health funds were forced to depend mostly on renting facilities rather than purchasing or constructing clinics—a change whose economic feasibility was not examined. In the existing data, the construction of these rented facilities is not considered an investment in healthcare. We cannot estimate what the volume of investment in community medicine would have been had these buildings been constructed with self-investment, or what the effect of this phenomenon on Israel's relative position in the international comparison, if any, would have been.

18 In 2009, the new Assuta hospital in Tel Aviv was opened, which apparently involved significant investment.

19 The private sector's share of all hospital beds in Israel is higher (35 percent), since this sector operates 60 percent of chronic illness beds (at old age homes and geriatric centers). However, the capital intensiveness at these hospitals is lower than at the general hospitals. Data on the distribution of beds can be found in: Hillal, Stavit and Haklai, Tziona (2013), "Hospital beds and positions on licensing, December 31, 2012", Ministry of Health, Information Division, Information and Computers Department.

hospitals testifies to the expansion of the private healthcare system in Israel in recent years[20], and on the building of capacity that, in the absence of other measures, will enable it to continue expanding in the future.[21] The rate of investment in hospitals owned by non-profit organizations (such as Hadassah and Shaare Zedek) was 33 percent—also high relative to the share of infrastructure in these hospitals (which operate 20 percent of curative care beds). In contrast, the rate of investment in hospitals owned by the government and the health funds (41 percent) was lower than their relative share of infrastructure in general hospitals in Israel (77 percent of curative care beds).

The investment in community medicine was divided equally among "public" not-for-profit providers (the government, health funds, and non-profit organizations) and providers in the business sector. The high rate of investment in the business sector testifies to the broad use by the health funds of service providers from outside the funds (independent physicians, examination centers, and so forth) in order to provide the services in the public Health Basket. However, it is possible that this rate is also influenced by the growth of (business) clinics that provide privately financed services to those with private insurance policies and to households paying out of pocket.

4. Capital stock in the healthcare system in Israel

An assessment of the existing treatment infrastructure in the healthcare system in Israel shows that the low rate of investment by international comparison has indeed led to a low level of capital stock in the system, which is reflected, among other things, by the use of old buildings[22] and outdated equipment[23], and by the low number of curative care beds and scanner instruments. The number of curative care beds per thousand population, which serves as an index of the scope of healthcare system infrastructure at the hospitals, is significantly lower in Israel (by 45 percent) than the average in OECD countries (Figure 5). However, the existing beds in Israel are utilized more "intensively" than in other countries: The occupancy rate of curative care beds in Israel—96.6 percent in 2012—is the highest in the OECD (where the average is 75.1 percent), and the average length of hospitalization in Israel—4.3 days—is two days shorter than the OECD average. Such intensive use leads to the full use of the limited hospitalization infrastructure, but also has negative effects on the quality of treatment and service. The occupancy rate testifies to great overcrowding, which sometimes leads to hospitalization in the hallways and dining areas (when occupancy exceeds 100 percent)[24], makes it difficult for the limited manpower (the scope of which is set in accordance with the number of beds) to provide the best service, and may contribute to contagious infection.

While the older age composition in most of the OECD countries apparently makes hospitalization there broader than in Israel, the large gap between Israel and the average and the high occupancy rates, as well as the aging of the Israeli population, make it necessary to begin investment now that will expand the hospitalization capabilities and/or reduce the load on the hospitals. The government of Israel did decide in 2011 on such a process, the addition of 960 hospital beds over six years[25], in addition to the 300 beds planned for the new hospital in Ashdod. However, the rate of planned addition of beds (8.5 percent) is even lower than the rate of population expansion in those years (close to 12 percent), and is certainly lower than the rate of increase of the age-equivalized population. The Committee for Strengthening the Public Health System (the "German Committee") determined that the addition of hospitalization beds or hospitalization alternatives in the community must be continued beyond this quantity.

Further evidence of the low capital stock in the healthcare system in Israel is provided by an assessment of the number

[20] The existing data are for 2008 to 2010 only.

[21] While the hospitals in the business sector enjoy income from private health insurance policies, they also provide services as part of the public Health Basket. Some of the investment in private hospitals can also be financed from public sources. For instance, at the hospital that the Assuta company is currently building in Ashdod, public services will constitute at least 75 percent of the hospital's activity. (Private medical services, if they are not cancelled, will constitute one-quarter of income at the very most.) The hospital itself is being built with the help of a state grant, which is financing most of the cost of investment in the construction of the hospital.

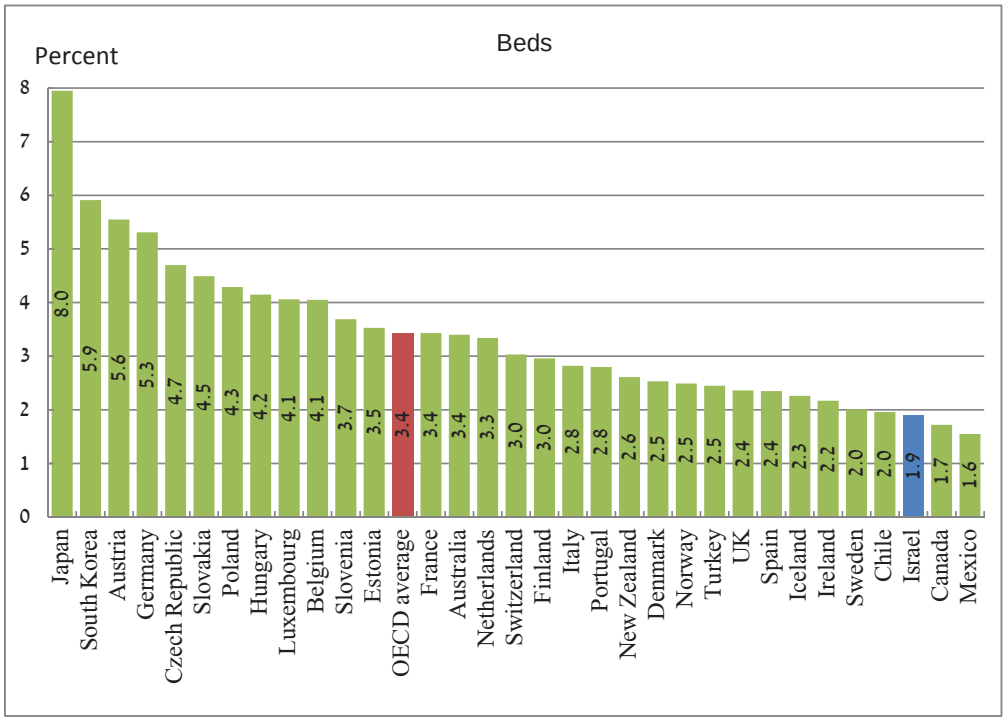
[22] The State Comptroller (Annual Report 63C, 2012) warned that many of the hospitalization wards and units in the general, psychiatric and geriatric hospitals are operating in old, run down and dangerous buildings that from many standpoints do not meet the Ministry of Health requirements for modern wards and units. The Comptroller also warned about insufficient investment in protecting hospitals against disasters.

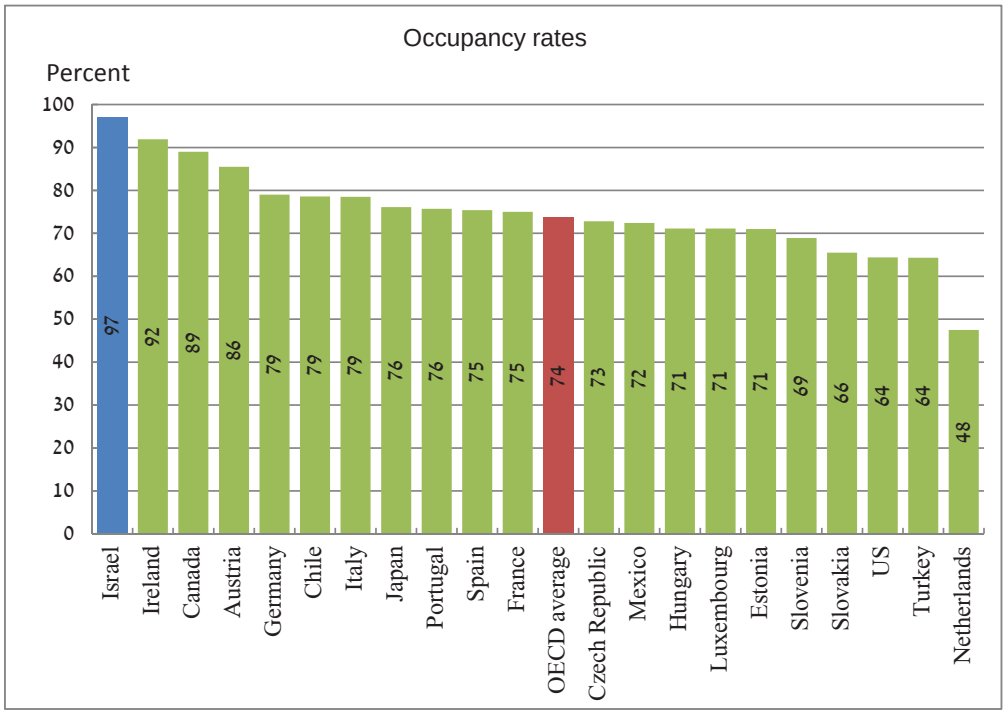
[23] The financial reports of the government hospitals show that in recent years, the equipment they are using has deteriorated, and its average age has increased. (The depreciated cost of the medical equipment and instrumentation at the government hospitals in 2012 was about 27 percent of their original cost, compared to 32 percent in 2007.)

[24] This problem is particularly severe in the internal medicine departments, where the average occupancy in 2013 was 100 percent.

[25] Decision 2917 of the 32nd government, from February 27, 2011 ("Strengthening the public health system and expanding the public hospitalization system").

Figure 5
Curative care beds in hospitals per thousand residents, and average occupancy rates in OECD countries, 2012



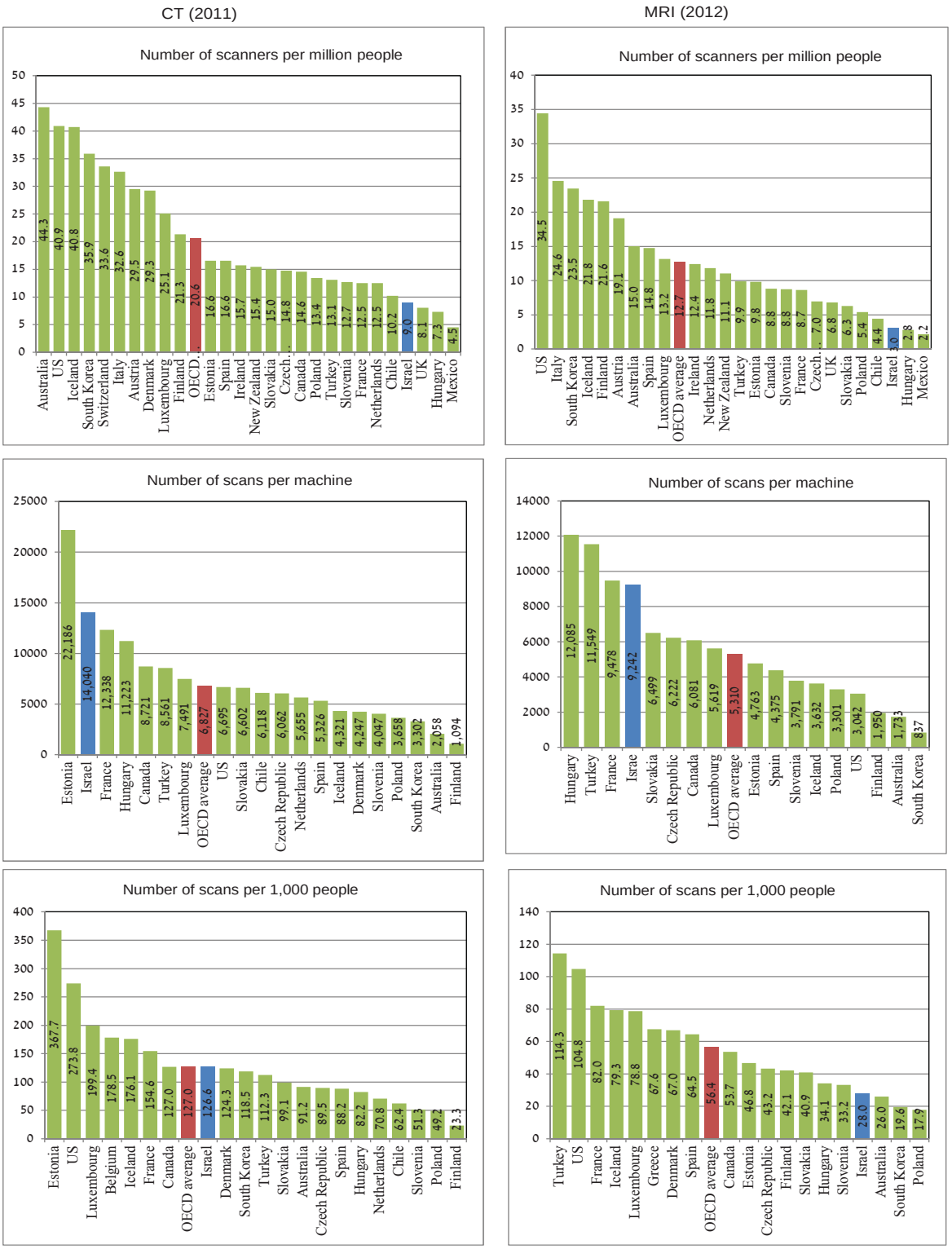


SOURCE: OECD.

of scanning and imaging instruments. In 2012, there were 9 CT scanners and 3.03 MRI machines for every million people in Israel—a very low rate compared to the OECD average, which is 20.6 CT scanners and 12.67 MRI machines per million people (Figure 6). Here too, Israel makes far more intensive use of the existing equipment than in other countries, and the average number of scans per machine in Israel is higher than in the OECD. The increased use of the machines leads to the number of CT scans per person in Israel being almost identical to the OECD average, but does not bridge the gap in the use of MRI machines. While the intensive use of the existing scanning equipment saves additional investment and limits the increase in current expenses, it may negatively impact the level of service to residents, who are sometimes forced to wait a long time[26] or to be examined at very late hours. Where the intensive use does not compensate for the lack of infrastructure (which is apparently the situation with MRI machines), the lack may negatively impact the quality of medical service and the health of the population. It should be noted that in recent years, the Ministry of Health has granted licenses that enabled the addition of new MRI machines, increasing the number of these machines from 9 in 2000 to 25 last year (as stated, 3.03 machines per million people). The Ministry is acting to allow the addition of another 14 new machines in the next few years.

[26] A survey conducted in 2012 found that about 40 percent of those referred for diagnostic examinations that are not common (CT and MRI among them) were forced to wait more than a month from the date of the referral until the date of the examination. See: Bramli-Greenberg, Shuli, Weitzberg, Ruth, and Goberman, Dror (2014) "Waiting times for consultative medicine and diagnostic and imaging examinations in the community from the insured client's point of view", research study RS-14, 678, *Myers-Joint, Brookdale Institute*.

Figure 6
Number of MRI and CT scanners, number of scans per machine, and number of scans per 1,000 people, OECD countries, 2011/2012



SOURCE: OECD.