Recent Economic Developments 136

April – September 2013

Bank of Israel
Research
Department

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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

Growth in the Israeli economy moderated during the two reviewed quarters (April to September 2013). In the second quarter of the year, GDP grew rapidly (4.6 percent in annual terms), but this growth was influenced by the start of natural gas production in Israel. Without that impact, the growth rate would have been slower. As the effect of natural gas production wore off, and mainly in view of the continuing weakness of Israeli exports, growth in the third quarter slowed to 2.2 percent. The moderate growth in Israeli GDP and the weakness of exports were affected, inter alia, by the fact that advanced economies worldwide continued to recover at a slow rate, while there was a slowdown in emerging markets. In contrast with exports, domestic demand increased during the reviewed period, encouraged among other things by accommodative policy in Israel. Private consumption and public consumption both expanded, and investment in the principal industries resumed its growth. However, a larger portion of this demand than in the past was answered by growth in imports and not by domestic production.

Total **imports** to Israel in April to September increased at a rate of 6 percent compared with the previous six months. This growth was affected by, among other things, the appreciation trend of the shekel, which continued during the reviewed period. The appreciation of the shekel lowered the prices of imported goods and impacted the profitability and competitiveness of exports, which are also coping with the continued weakness of demand in the global economy. Total exports declined during the reviewed period at a rate of 1.1 percent compared to the two previous quarters. In particular, exports in the manufacturing industry declined, with a high level of volatility in some of the industries, while total service exports increased. These developments led to the goods and services account in the Balance of Payments moving from surplus to deficit.

The moderation in growth has not been reflected in aggregate data on the **labor market**. Despite the moderation, about 50 thousand new employed persons were added to the economy during the reviewed period, the employment rate increased slightly, real wages also increased, and the unemployment rate continued to decline to 5.3 percent of the labor force aged 25–64 (the prime working ages). However, the addition of employed persons was derived mostly from the public services, while the number of employed persons increased at a low rate in the business sector.

The new **government** operated without an approved budget until the end of July, when the Knesset approved a new budget for 2013 and 2014. The budget included a plan to reduce the deficit by raising taxes and cutting most of the amount in excess of the expenditure ceiling in the fiscal rule. The deficit for 2013 is expected to be significantly lower than the target set in the budget, thanks to lower-than-planned government expenditures and higher-than-planned tax collection, which derived mainly from one-time revenue.

In the **capital market**, share and bond prices were impacted by geo-political developments and the uncertainty surrounding the timing of the tapering of bond purchases by the Federal Reserve. The uncertainty caused tremendous volatility in financial markets worldwide. Stock and bond indices on the Tel Aviv Stock Exchange declined from the beginning of the period to the beginning of September, but have since posted respectable price increases. At the end of the reviewed period, price increases were also posted in government bonds, yield gaps between Israel and other advanced countries declined greatly, and 10-year government of Israel unindexed bonds resumed their low yields that are currently close to 3.5 percent.

Inflation accelerated slightly during the reviewed period, and was also impacted by the increase in indirect tax rates. Still, for most of the period, inflation (over the previous 12 months) remained in the lower part of the price stability target range. The increase in **home prices** slowed slightly at the beginning of the second quarter of the year, but resumed its acceleration afterwards. At the end of the period, prices were 10.1 percent higher than they were 12 months earlier. In order to reduce the risks to the public and to the banking system from price increases in the housing market and from the increase in housing credit, the Supervisor of Banks issued a directive in August to limit the payment-to-income ratio, the portion of the loan issued at variable rate interest, and the duration to repayment of the loan.

The **Bank of Israel** Monetary Committee decided to reduce interest rates three times during the reviewed period (an unscheduled decision in mid-May, and the decisions for June and October), and the interest rate currently stands at 1 percent. The low level of inflation made it possible to lower the interest rate in order to support economic growth, inter alia by reducing the gap between the Bank of Israel interest rate and the low interest rates in other advanced economies—a reduction which is moderating some of the pressure for appreciation of the shekel as well as encouraging

growth. In order to reduce appreciation pressures resulting from the production of natural gas, the Monetary Committee decided in May to put in place a long-term foreign exchange purchasing program that will offset the effects of natural gas production on the current account until the Sovereign Wealth Fund begins operating.

Budgeting in the public health system and updating of the budget for the basket of health services

- In the last five years, the gap between the budget for the basket of health services and the costs inherent in the provision of the medications and services in the basket expanded. The gap enables the government to maintain pressure to restrain expenses in the health system, but it contributed to a marked increase in the deficits of the health funds—organizations that in 2007 were close to balanced—and to an increase in the operating deficits of the hospitals.
- In May 2013, the government decided to change the mechanism by which it updates the budget for the basket of health services, and the annual addition to this budget will grow. However, since the costs of the public health system are expected to grow in the next few years as well, as a result of the recent wage agreements and the expenses inherent in the provision of services to a growing and aging population, even after the change, the annual update is insufficient in order to reimburse the system for these costs. In the absence of complementary budgets or an explicit decision to narrow the basket of health services, the budgetary gap will continue to expand.
- Budgetary support outside the official basket of health services serves to partially bridge the gap created in updating the budget of the basket. The public health system's increasing dependency on such budgets maintains pressure for restraining expenses, but prevents budget certainty and makes it difficult to manage the health funds and the hospitals. It is recommended that consideration be given to moving some of the external budgets into the basket, and that long-term, rigid and uniform financial criteria be set for transferring the support that remains outside the basket.

The National Health Insurance Law, which came into effect in 1995, defined a basket of health services—a list of medications and services that the health funds are required to provide to all residents of the State through public financing. The budget for the basket was originally set based on actual health fund expenses in 1993, and it is updated every year in accordance with changes in the Health Prices Index—an index that tracks the prices of inputs necessary for the provision of the services and medications in the basket. Over

the years, the budget of the basket has been updated at rates that vary both due to demographic changes and as a result of the addition of medications and services to the basket. In 2012, the budget totaled about NIS 35 billion.

In parallel with the discussions on the economic plan for 2013–14, the government made a series of decisions (on May 13) concerning the annual update of the budget for the basket and concerning prices in the health system. In the background, there was a ruling by the Supreme Court instructing the government to establish a mechanism to enable updating the formula for setting the Health Prices Index, and to find a way to stop the erosion of the health funds' budgets.

This article assesses the mechanism for updating the budget of the basket of health services and the extent to which it adapts the budget to actual costs. Maintaining some gap between the budget for the basket and the actual costs enables the government to maintain pressure to restrain expenses in the public health system, with the aim of streamlining the system. However, during the past five years—the focus of this article—the budgetary gap expanded greatly and contributed to a marked increase in the health fund and hospital deficits. (The health funds were close to balanced at the beginning of the period and, according to data published recently, their deficits totaled NIS 860 million in 2012.) This article also discusses some of the budgets passed on by the government to the health system outside of the basket in order to cope (partially) with the deficient update of the official basket.

1. The new formula for determining the Health Price Index, and the demographic update of the budget for the basket of health services

In May, the government decided to change the weights of the components included in the formula for determining the Health Price Index (see Table 1). The weight of the "average salary in the health sector" component will increase as of 2013 from 36 percent to about 40 percent of the index, providing the health funds—and through them the hospitals from which they purchase services—larger budgetary compensation for the actual cost of salaries in the system. However, the compensation remains only partial, since

Table 1: The components of the Health Price Index, previous and new (since May 13) weights

	Consumer Price Index	Index of wages per salaried position in the health industry	Index of wages per salaried position in the public sector	Index of wages per salaried position in the general government sector	Residential Construction Inputs Price Index	Total
Prior weights	40%	35.96%	22.04%		2%	100%
New weights	32%	40.30%	18.20%	6.50%	3%	100%

SOURCE: Government Secretariat and Bank of Israel calculations.

salary expenses in these institutions constitute about 60 percent of total health fund expenses.[1]

The other wage components in the formula measure wages in the public and central government sectors ("proxy indices") and have difficulty compensating for the lack during periods when wages in the health system increase rapidly compared to the rest of the public sector. As Figure 1 shows, that is what happened during the past five years (2007–12): The gap between the rates of change in wages in the two sectors expanded greatly compared to the previous five years, as a result of wage agreements signed with the physicians and nurses.[2] The real increase in the average wage in the health services totaled 9.2 percent during the past five years (and even more in the hospitals), while the average wage in the general public services declined by 2.4 percent in real terms.

The gap between the cost of wages in the health system and in the general public sector led to the budget for the basket

of health services being under-updated[3], and contributed to the growth in the deficits of the public health system: the deficits of the health funds[4] were very small in 2007 (NIS 46 million), but in 2011 and 2012 they reached an average of about NIS 1 billion per year (despite the growth in the budgets transferred to the health funds outside the basket of services[5]; see details below). The subsidies required to cover the operating deficits at the government hospitals—which contain almost half of the hospital beds in Israel—increased from NIS 550 million in 2007 to NIS 865 million in 2012.

Figure 1
The real change in the average wage per employee post

SOURCE: Central Bureau of Statistics and Bank of Israel calculations.

NOTE: In 2011, the Central Bureau of Statistics changed the classification of industries. The growth rates presented in the figure are built by concatenating the changes in wages among industries that remained the same or similar before and after the change in methodology.

[1] Salary expenses constitute 26 percent of total health fund expenses (according to the report summarizing health fund activities in 2012) and 66 percent of hospital expenses (which was the case in 2010, according to the financial statement of the government hospitals). The rate in the entire system is calculated as the amount of the health funds' direct salary expenses (including salary expenses for pharmacists, which is tacked on to the pharmaceuticals expense item) and of the "indirect" salary expenses, meaning wages paid through payment for hospitalization (according to the weight of wages in hospital expenditures) and through payment to private laboratories and institutes (by the average weight of wages in the health funds and the hospitals). The final weight (58 percent) is calculated as the total direct and indirect salary expenses divided by total health fund expenses. This weight is, apparently, an underestimation of the weight of wages in the system as a whole (since hospitalization payments by the health funds do not cover all of the hospitals' expenses for providing the services in the basket), and it is expected to increase further in the next few years.

[2] During the last period, doctors received a wage addition of 24 percent due to arbitration proceedings they conducted with the State in 2008, and an additional 47 percent by 2018 as a result of the last wage agreement, which was signed in 2011. The nurses signed new collective agreements in 2008 and at the beginning of 2013.
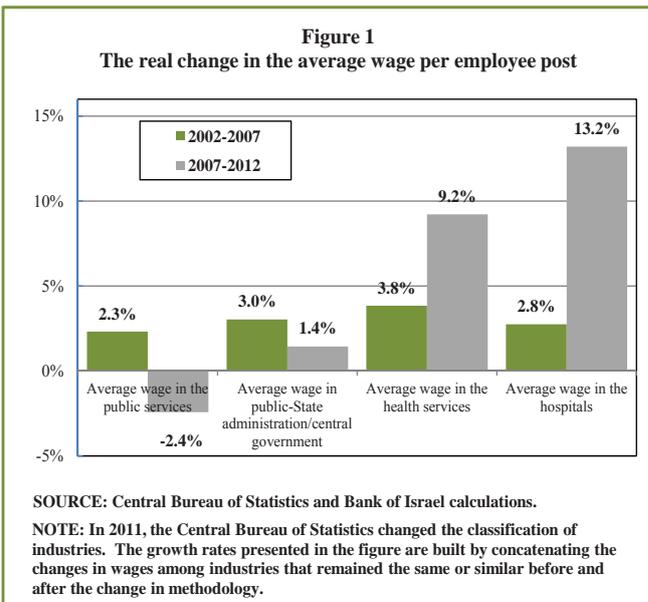
[3] According to our calculations, had the Health Price Index in the past five years (2008-12) given wages in the health services their actual weight (58 percent), the budget for the basket of health services in 2012 would have grown by about NIS 680 million.

[4] The health fund deficits include the deficits of the hospitals belonging to Clalit Health Services, which contain 30 percent of the hospital beds in Israel.

[5] The health fund deficits are calculated after adding support that the State provides outside the official basket of health services. Without the income from the support and from one-time profits, the deficit grew from about NIS 500 million in 2009 to NIS 2 billion in 2012.

The under-updating in respect of the cost of wages, together with the wage additions expected until the end of 2014, will expand the gap in budgeting for the basket of health services and will increase even further the deficits in the health system, if the government does not inject complementary budgets or decide to reduce the services provided by the system.

The formulation of the Health Price Index uses indices of wages outside the health system (the "proxy indices") in order to prevent the health funds and the hospitals from acting with indifference toward the wages they pay their employees, and in order to encourage them to prevent wages in the health system from ballooning compared to wages in the rest of the public sector. This is obviously a worthwhile goal, but we must remember that the government plays a decisive role in the wage agreements that have been signed in the system, and that it must also deal with the ramifications of the agreements on the budgetary ability of the public health system to continue providing the services included in the basket at the same levels of quality and availability.

When the government agrees to marked increases in the wages of doctors and nurses, and does not accordingly increase the budget of the basket of health services or other complementary budgets, it basically cuts the real budget for the provision of the services in the basket. It is appropriate to reach such a decision as part of a comprehensive discussion of priorities, and particularly to discuss—in parallel with the cut—the priorities among the services included in the basket: Should the depth of the basket be reduced, should certain services be made less available, should the level of co-payments be changed, and so forth? Consideration should also be given to the possibility that a negative impact on the public health system will increase the use of private health services[6], and particularly to the possibility that budgetary distress in the health funds will enhance their incentive to divert activities to their complementary insurance programs[7] ("Shaban"). Such developments may cause damage over a long period to the efficiency of the health system in Israel, increase the long-term costs of services to the public, and reduce their accessibility.

The second measure adopted by the government in May increased the rate of the annual update of the budget for the basket of health services due to demographic growth, with the rate increasing gradually from the current level of 1.2 percent to 1.5 percent in 2014, 1.55 percent in 2015, and 1.6 percent in 2016. This rate of growth is still lower than the annual rate of growth in the equivalized number of insured persons[8] in the health funds—2.4 percent in 2012. The limited rate of the update tries to take into account the health funds' streamlining capabilities and the advantages of size that they have (since the existing infrastructure and equipment can also serve insured persons who are added at the margins). However, in the intermediate and long range, too great a gap between the rate of the demographic update of the budget for the basket of health services and the growth rate in the number of (equivalized) insured persons also constitutes a cut in the real budget for the basket, and in the absence of additional revenue, it will lead to a negative impact on the level of services provided as part of the basket. The government's decision to raise the rate of the demographic update will increase the budgetary additions to the basket in the future, but it does not compensate for the gaps that have already been created in the budget for the basket of health services.[9]

In addition to these two measures, the government also adopted a new formula for updating the maximum prices for medical services (price per day of hospitalization), but the determination of this price mainly affects the distribution of resources within the system, among hospitals and health funds, and is not intended to influence the total budget directed to the public health system. This distribution is also affected by the rates of discounts that the health funds receive in purchasing agreements with the hospitals. The growth that has taken place in the rates of the discounts in recent years increases the deficits of the hospitals, and where it concerns government hospitals, it basically constitutes an additional budgetary subsidy for the public health system.

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[6] In relation to GDP, the public expenditure on health services in Israel is low by international comparison (even when excluding the effect of the young age of the population—see discussion in Recent Economic Developments, number 135). In regard to national privately financed expenditure on health services, the rate (40 percent) is high by international comparison.

[7] The services provided as part of the additional health services insurance through the health funds are wholly financed by the premiums paid for these insurance policies. When these are services that replace (and improve on) services in the basket of health services, the diversion of activities to additional health services basically saves the health funds the expenditure from their basket budget.

[8] The equivalization was done according to the capitation formula, which takes into account the differences in expenditure for an insured person by age, gender and geographic distance. The aging of the population in Israel, and the fact that expenditure for the elderly is higher, contribute to the fact that the growth rate in the number of equivalized insured persons (2.4 percent in 2012) is higher than the growth rate in the actual number of insured persons (1.9 percent in the same year).

[9] In the past five years (2008–12), the number of equivalized insured persons increased by 10.3 percent, but the budgetary compensation for demographic growth totaled 5.4 percent. So for instance, if the updated rate of the demographic update (1.6 percent per year) had been in place in the past five years, the budget of the basket last year would have been about NIS 900 million higher than its actual level.

2. The budgets transferred to the health funds and hospitals outside the basket budget
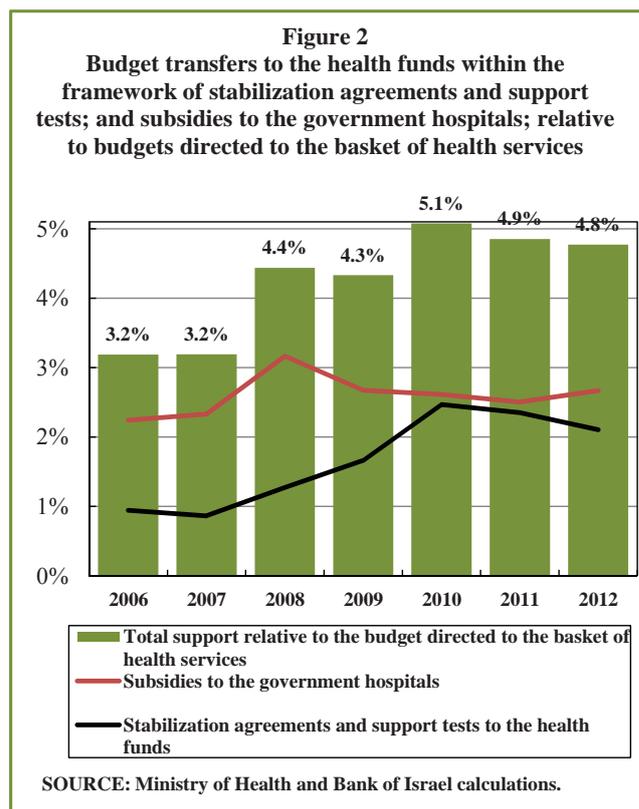
The basket of health services is not the only budgetary source of financing for the institutions that provide the services included in the basket—the health funds and the hospitals. These institutes are also supported by budgets that the government transfers to them outside the basket, which serve for on-going operations and for infrastructural development. Figure 2 presents two such budgets—the on-going subsidy received by government hospitals[10] and the money received by the health funds as a result of stabilization agreements and support tests.[11] The amount of these two budgets has doubled since 2007, and reached NIS 1.55 billion in 2012—about five percent of the public budget directed to the official basket of health services[12], compared with about just three percent in 2007.

Among the external sources of financing, we can also include the financing advances that the State transfers to the health funds every year, the amount of which grew from NIS 217 million at the end of 2007 to NIS 874 million at the end of 2012. These funds are provided on account of the following year's budget, and serve as a cash flow means of coping with the health funds' deficits. In the years in which the supply of the advances grew, they basically provided additional support to the health funds. Finally, the State pays the hospitals a grant through the National Insurance Institute to finance the costs inherent in childbirth ("hospitalization grant"), which totaled NIS 2.3 billion in 2012. In recent years, the growth in the amount of the hospitalization grant was higher than the growth in the price of the medical services in the hospitals (price per day of hospitalization),

Figure 2
Budget transfers to the health funds within the framework of stabilization agreements and support tests; and subsidies to the government hospitals; relative to budgets directed to the basket of health services

Legend:
- Total support relative to the budget directed to the basket of health services
- Subsidies to the government hospitals
- Stabilization agreements and support tests to the health funds

SOURCE: Ministry of Health and Bank of Israel calculations.

and there are those who argue that the grant constitutes a general subsidy for the hospitals that exceeds the actual costs of birth and care of newborns.[13]

The health funds and hospitals are therefore dependent to an increasing extent on budgets transferred outside the basket of health services. This enables the government to maintain constant pressure for restraining expenses in the system. However, these budgets are frequently transferred late, and cause a lack of certainty and budget volatility: The subsidies to the government hospitals are updated during the year, and adjustments to their budgets are also made retroactively at the end of the year. In each of the last five years, the scope of the subsidies actually transferred to the hospitals was higher than the budget allocated for this, usually by 30–60 percent. In regard to the health funds, the support for them is set for a period of three years through separate negotiations between the government and each of the health funds. As a result, the

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[10] The calculation includes only the subsidies transferred from the Ministry of Health's current budget (Regulation 24192005, as part of which NIS 866 million were transferred in 2012), and not those transferred from the development budget. The calculation does not include budgets that were transferred to other general hospitals.

[11] According to Ministry of Health data, NIS 668 million was transferred to the health funds in 2012 as part of the stabilization agreements, and these agreements constitute the lion's share of external support for the health funds. The stabilization funds are conditioned upon accumulated deficit reduction targets or restraining expenses. The funds transferred as part of the support tests are conditioned for the most part on defined medical and operational targets (for instance, the operation of mother and child wellness stations in Judea and Samaria, reducing the co-payments for flu vaccines, the operation of a plan for reducing repeat hospitalizations, and so forth). In 2012, NIS 14 million were transferred to the health funds within the framework of the support tests, but in the two previous years, the amount was about NIS 190 million on average.

[12] The public budget directed to the basket of health services constitutes 93.55 percent of the total budget of the basket. The remainder of the budget (6.45 percent) is financed by the co-payments of insured persons.

[13] The National Insurance Institute's annual report for 2012 determined that "government involvement in determining the amount of the hospitalization grant is basically a means of injecting budgets to the hospitals through the National Insurance Institute". According to the customary rules in the State Budget, such use does not reduce the impact of the payments on the government deficit, but it does reduce the expense recorded in the budget for assessing how the government meets the expenditure rule.

support is sometimes set and transferred very late[14], leading to volatility in the health fund budgets and in their deficits.

The use of external budgets forces the public health system to be managed with a lack of certainty, and makes long-term planning and execution difficult. This situation may negatively impact the efficiency of the system and its ability to provide the services included in the basket of health services at a good and stable level. In order to prevent this, consideration should be given to transferring some of the external budgets into the official basket of health services. In parallel to such a step, and to the updating of the budget for the basket in real terms to the cost of the services included in it, consideration should be given to making the expense limitations on health fund and hospital expenditures significantly more rigid.[15] As an alternative to a process in which complementary budgets are set through separate discussions with each entity for a period ranging from one to three years, it is worthwhile setting the distribution of the budgets remaining outside the basket by formulating long-term, uniform and rigid criteria.

Assessment of the fiscal developments since the budget was approved, and their effect on the expected fiscal path

- The measures adopted by the government within the framework of approving the budget for 2013 and 2014 strengthened the credibility of Israel's fiscal policy, and contributed to an improvement of Israel's standing in financial markets.
- The budget deficit in 2013 is expected to be below 3.5 percent of GDP, markedly lower than the deficit target of 4.65 percent of GDP.
- The below-target deficit reflects expenditures lower than the approved budget, and high tax revenues, most of which were exceptionally large one-off revenues.
- The budget deficit in 2014 is expected to be similar to the target set in law, 3 percent of GDP.
- If the government's proposal to cancel the income tax rates increase, which was set to come into effect in the beginning of 2014, alongside a similar reduction in the expenditure ceiling, is accepted, the government is expected to meet the deficit target in 2014, but it will be more difficult to meet the target in following years.
- Meeting the declining deficit targets set in law for 2015–17 requires additional policy measures—increased taxes, or reduction of the expenditure ceiling and a corresponding contraction of the government's expenditure programs—valued at 1 percent of GDP in 2015 and more than 2 percent of GDP, cumulative, by 2017.
- If the adjustment of the budget required to meet the deficit target is carried out solely by reducing expenditures, primary civilian expenditure per capita will not increase until 2017, compared with its current level.
- Fiscal data based on the new national accounting methodology adopted by the Central Bureau of Statistics highlights the extent to which Israel is characterized as a country with low public expenditure and tax burden. Based on the new calculations, as with the previous ones, the current general government deficit in Israel is high, compared with other countries.

1. Introduction

The government faced a complicated fiscal challenge at the end of 2012 and in the beginning of 2013. The government deficit for 2012 deviated markedly from the target and led the government, in August 2012, to increase the deficit target for 2013 from 1.5 percent of GDP to 3 percent, along with raising tax rates. Despite this, the performance of budget in the beginning of 2013 indicated a high probability of the government deviating from the increased deficit target, as well. In addition to the development of the actual deficit, the government also faced numerous expenditure programs which were adopted in previous years, the cost of which deviated significantly from the expenditure ceiling set by the expenditure rule. This combination of a high current deficit and decisions on additional expenditures threatened to lead to a large and sustained increase in the debt to GDP ratio to dangerous levels.

In order to deal with the difficulties in the budget, the government put into effect a comprehensive fiscal adjustment plan which included an immediate increase in indirect tax rates, a decision to increase direct tax rates beginning in 2014, and a marked contraction of expenditures—by postponing or cancelling programs which were to be carried out in 2013 and 2014, by deferring wage payments, and by markedly reducing the defense budget and child allowances. It was assessed that the measures adopted by the government would be sufficient to halt the worsening of the deficit and to reduce it to a level of about 3 percent of GDP in 2014. These measures also contributed to strengthening the confidence of the capital markets in Israel's economy and in the government's fiscal control, and to a decline in yield spreads between Israel and the developed markets. With that, the

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[14] For instance, the stabilization agreements for 2011–13 were only signed (with the first two health funds) in December 2012.

[15] A similar process—making the budgetary limitations rigid and increasing supervisory capability—helped improve the budgetary discipline of the local authorities in Israel during the past two decades. Starting in 1993, the balance grants transferred by the government to the local authorities were set through a rigid, uniform and long-term formula, and these grants no longer reward the authorities for failing budgetary performance. Details can be found in Box 6.2 of the Bank of Israel Annual Report for 2012.

plan left the government the complex challenge of carrying out the adjustments required for the deficit and expenditure levels in the years after 2014 to be in line with the targets set by law. Given that the deficit level was still high compared with other countries—and too high to allow a sustained decline in the debt to GDP ratio—and particularly since such a deficit level was achieved when the economy is at high employment levels, which help to reduce it, it is of great importance that the government continue to carry out the processes required to achieve the deficit targets.

The following section in the survey reviews several of the basic fiscal aggregates in Israel and their revised values based on the new national accounting methodology adopted by the Central Bureau of Statistics. Section 3 analyzes the 2013 budget performance, and Section 4 presents an updated forecast for the 2014 budget. Finally, Section 5 analyzes the expected development of the fiscal aggregates from 2015 and onward, based on alternative policy paths.

2. Revised fiscal data

In August, the Central Bureau of Statistics revised National Accounts data in accordance with the new international calculation method, SNA 2008. This adjustment included many changes in National Accounts components and in GDP level, including adjusting the method of calculating government expenditures, which changed the size of government expenditure and several of its components by several billion shekels. In addition, as every year, the National Accounts for previous years were revised based on various data and surveys conducted by the Central Bureau of Statistics, including revised input-output tables for 2006. As a result, the estimated level of Israel's nominal GDP in 2012 was about 7 percent higher than its level according to the previous calculation method, and the size of the fiscal aggregates in Israel, measured as a percentage of GDP, changed. This year, the tables and figures which appear in the fiscal policy chapter of the Bank of Israel Annual Report, and which the Bank revises once a year in November[16], reflect these changes for the first time. Due to the size of the changes, we present in short the main fiscal aggregates according to their new definition (Table 1).

The main changes in 2012 data, compared with the Bank of Israel Annual Report which was published in March 2013 are as follows:

The share of public expenditure in GDP is 39.2 percent, about 2.9 percentage points smaller than the figure published

in March. Under the international definition, the share of expenditure in GDP declined to 40.2 percent.

The share of total revenues in GDP is 35.4 percent, about 2.2 percentage points smaller than according to the previous data. The tax burden declined by 2.1 percentage points, to 29.5 percent of GDP.

The overall general government deficit is 3.9 percent of GDP, about 0.6 percent of GDP lower than the previous data. The government budget deficit is 3.9 percent of GDP, 0.3 percent of GDP lower than the previous data. Using the international definition, the overall deficit of the general government is 4.8 percent, 0.4 percentage points lower than the previous data.

The debt to GDP ratio is 68.4 percent, 5.5 percentage points lower than the previous data.

There is some difficulty in conducting an international comparison of the new data, since most developed economies have still not adopted the SNA 2008 definitions.[17] With that, the move to these definitions is responsible, as noted, for only part of the changes in Israel's data, and since it is assessed that adoption of the method in other countries will influence the measurement of their GDP less than the change which was carried out this year in Israel, we present an international comparison of several major indicators of the fiscal situation.

The comparison indicates that the share of Israel's public expenditure in GDP is lower than the advanced economies average (Figure 1). The share of primary civilian expenditure in Israel is lower by 13 percentage points than the average of those countries (Figure 2) and is lower than the share of all of them except for South Korea (data is unavailable for Mexico, Chile and Turkey, but it appears that they also have lower expenditure than Israel). The tax burden in Israel is lower by about 4 percent of GDP than the OECD average (Figure 3). The deficit is about 1.3 percent above the average (Figure 4), even though the output gap is low compared with other countries. The debt to GDP ratio in Israel is lower by about 15 percentage points than the average of advanced economies (Figure 5).[18]

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[16] The complete set of updated tables and figures, including appendix tables, appears on the Bank of Israel's website at http://www.bankisrael. org.il/en.

[17] To date, only 4 OECD countries revised their National Accounts data due to the change in calculation method, other than Israel: the US, Canada, Australia, and Mexico.

[18] The OECD has recently used an additional definition of public debt, under which the public debt in Israel (in 2011) is NIS 100 billion greater than under the previous definition. Since Israel's data under this method are not up to date, and still suffer from various imprecisions, and since the additional method raises some complex methodological issues, we are not presenting, at this point, data based on the new definition.

Table 1: The Main Components of the General Government's Revenue and Expenditure, 2007–12
(percent of GDP)

	2007	2008	2009	2010	2011	2012
Total public revenue	41.3	38.6	38.6	35.7	36.7	35.4
Total taxes	34.5	31.9	29.7	30.5	30.7	29.5
Other[a]	6.8	6.7	8.9	5.2	6.0	5.9
Total public expenditure	41.5	40.7	41.0	40.1	39.4	39.2
Domestic civilian consumption	16.8	16.9	17.0	17.1	17.2	17.1
Domestic defense consumption	5.2	5.2	5.1	4.9	4.8	4.5
Interest payments	4.3	3.4	3.5	3.3	2.8	2.8
Current transfer payments	9.7	9.7	10.1	9.9	9.9	9.9
Investments of the general government and transfer payments on capital account[b]	3.3	3.5	3.5	3.2	3.1	3.2
Total deficit of the general government	0.3	2.1	5.3	3.6	2.7	3.9
Deficit per the international definition[c]	1.4	3.7	6.8	4.6	3.8	4.8
Gross public debt[d]	74.6	72.9	75.3	71.5	69.7	68.2

[a] Includes grants, income from assets, transfer payments from the public, imputed pensions, depreciation, capital transfers from abroad, and transfers from abroad to national institutions and nonprofit organizations.
[b] Includes mortgage subsidies and transfers on the capital account to nonprofit organizations and businesses.
[c] This line item adjusts the deficit to the accepted international definition by adding linkage differentials on to CPI-indexed and unindexed shekel debt.
[d] Percentage of GDP at year end.
SOURCE: Based on Central Bureau of Statistics data.

Figure 1
Share of total public expenditure in GDP—Israel and other OECD countries, 2012

Figure 2
Share of public primary civilian expenditure in GDP—Israel (2012) and other OECD countries (2011)

Percent of GDP

Figure 3
Tax burden—Israel (2012) and other OECD countries (2011)
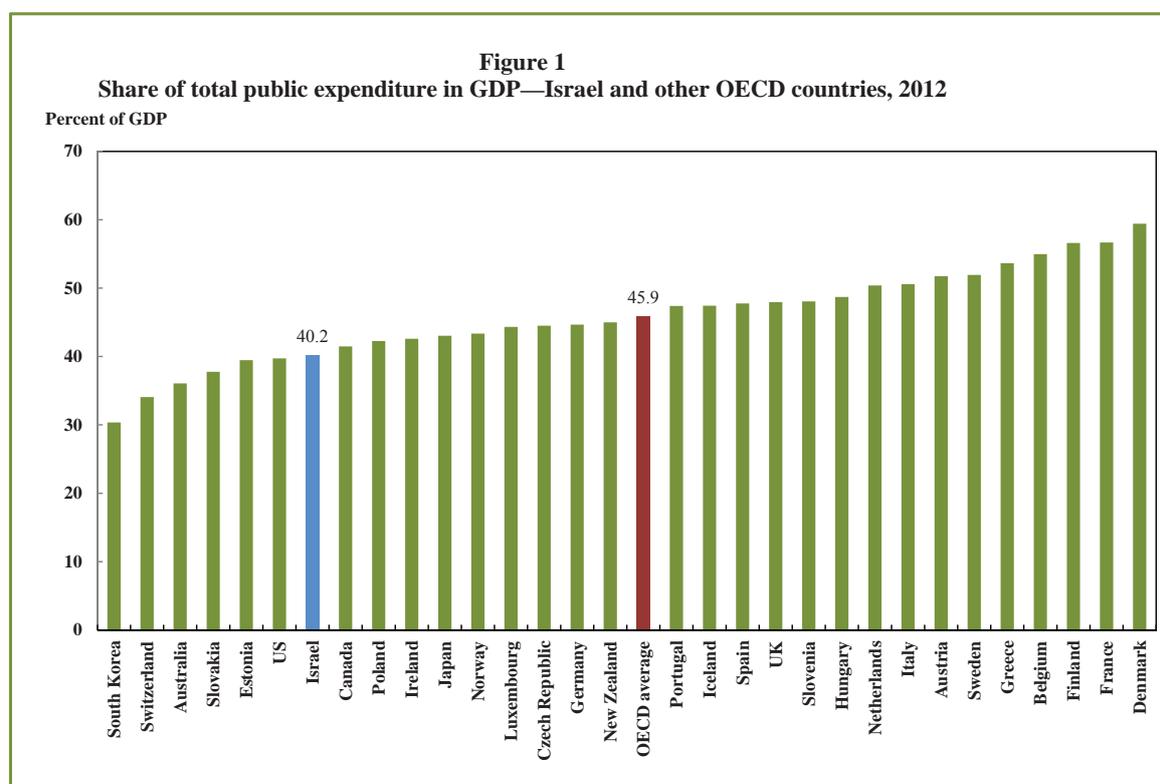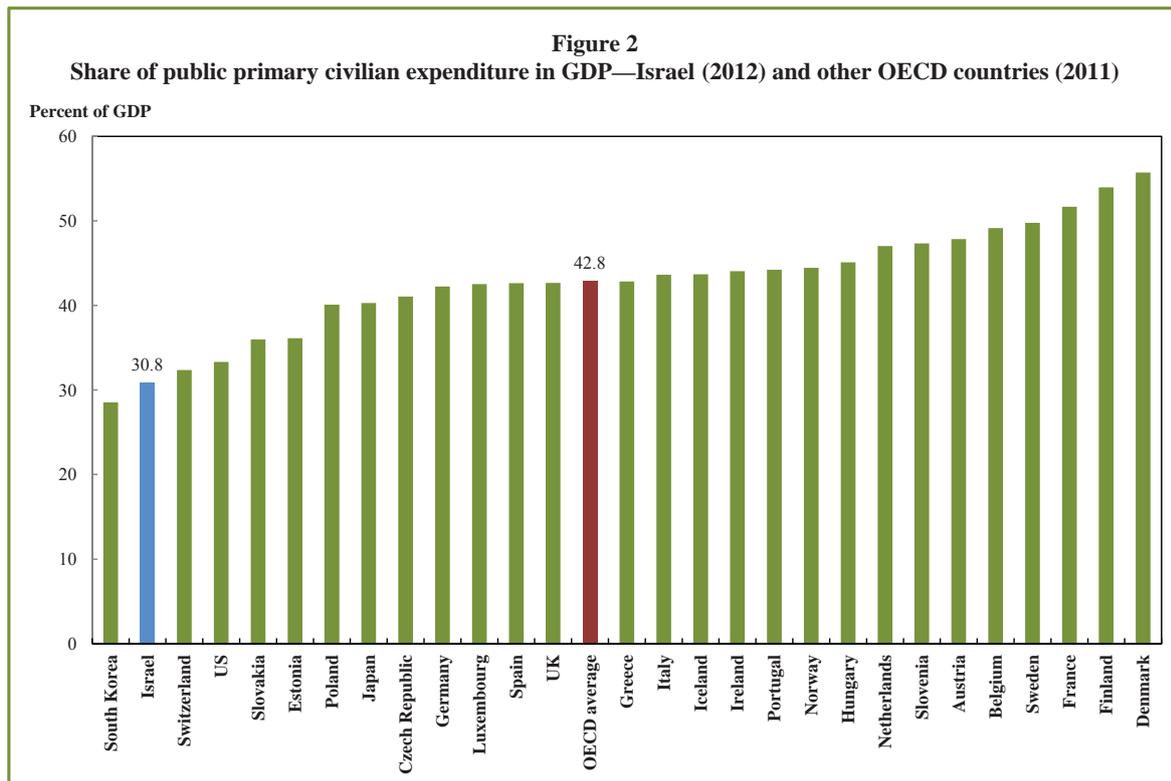
Percent of GDP

Figure 4
General government deficit—Israel (2012) and other OECD countries (2011) (percent of GDP)

Percent of GDP

Figure 5
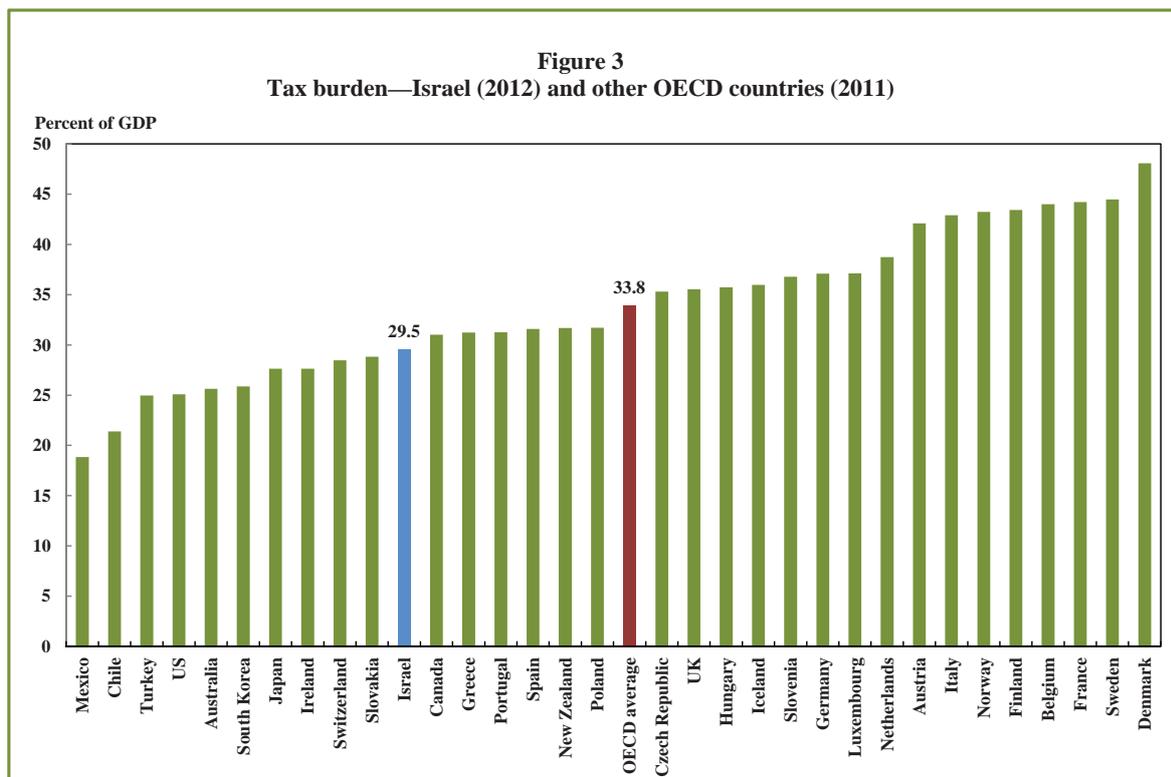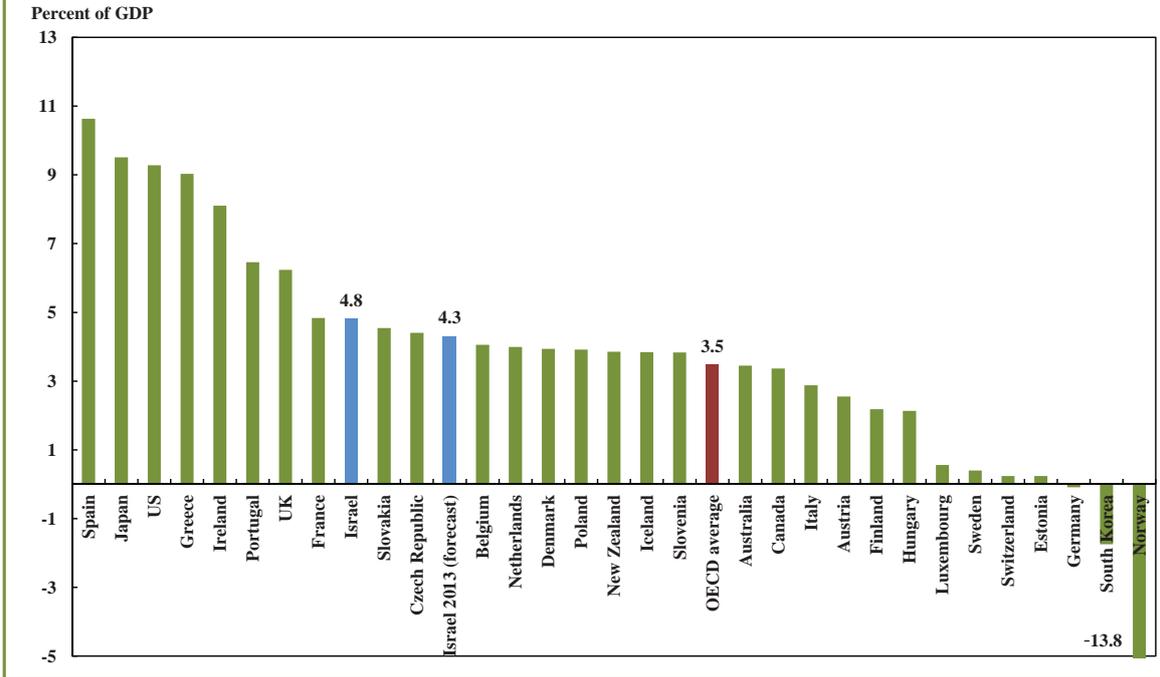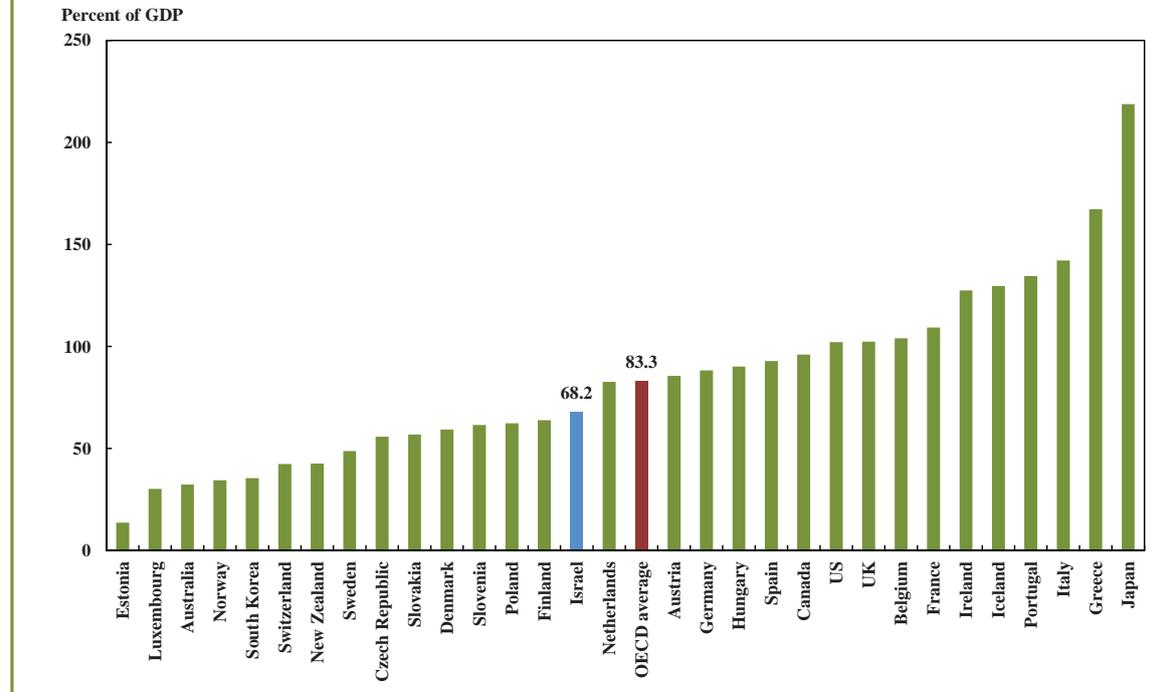**Public debt (gross) to GDP ratio—Israel and other OECD countries, 2012**

Percent of GDP

3. Budget performance in 2013

Based on developments to date, it appears that the budget deficit in 2013 will be smaller than 3.5 percent of GDP, much below the ceiling of 4.65 percent of GDP set when the budget was approved at the end of July. The lower than expected deficit reflects a combination of three developments—expenditures which are lower than the approved expenditure ceiling, exceptionally large one-off tax revenues of around NIS 6 billion, and the change in GDP estimations implemented by the Central Bureau of Statistics which reduced the deficit to GDP ratio by about 0.25 percentage points of GDP (see the discussion in the previous section of this review).

Budget performance data as of the end of October indicate that expenditures were lower by about NIS 9 billion than the seasonal path consistent with full performance of the budget. An analysis of performance data based on budget components, as reported by the Ministry of Finance, indicates that expenditures by government ministries during that period (with the addition of the budget reserves) was within the seasonal path consistent with nearly full performance of their budgets by the end of the year. In contrast, under the "Miscellaneous" section, which was budgeted about NIS 7.5 billion, only NIS 900 million were spent through the end of October, and a cumulative NIS 1.4 billion through the end of November.[19] In addition, interest expenses were about NIS 2 billion lower than the path consistent with full performance of the budget. It is too early to tell how budget performance will look at year end, since expenditures each year in December are markedly higher than in the other months of the year, and they vary widely between years. However, it appears that government ministries are essentially fully utilizing the budgeted funds allotted to them, and that the low performance rate reflects sections mainly involving government administrative offices. There is some logic in the non-utilization of these amounts this year, if the deficit and the unusual expenditure levels set in the 2013 budget are taken into account, and particularly in light of the fresh experience with the heavy pressures on the 2012 budget framework, which were even reflected, in the end, in expenditures greater than originally budgeted. With that, to the extent that expenditure levels at the end of the year are in fact lower by the amounts they appear to be, there is some room for future improvement in the precision in budget allocation, in order to ensure that the

use will be more efficient. This is particularly in light of the need, which was quite notable this year, to reduce important expenditure plans when the budget was prepared, in order to avoid deviating from the expenditure ceiling.

Government tax revenues through the end of October were about NIS 2 billion higher than the seasonal path consistent with revenue projections in the government budget. This surplus primarily reflects one-off revenues from the sale of a large company. By year end, the gap between actual and projected tax revenues is expected to increase to up to NIS 6 billion, due to tax payments on "trapped profits", which are also one-off occurrences.[20] Excluding these extraordinary revenues, tax receipts to date are about NIS 3 billion greater than the forecasts presented in the budget documents.[21] Other government revenues are approximately in line with those projections.

4. The 2014 budget

Since the 2014 budget was approved, there have not been any macroeconomic developments which are expected to lead to a significant change in tax revenue projections. Tax revenues in 2013 are greater than expected but, as noted, this derives primarily from extraordinary one-time revenues. On the expenditure side, the low performance of some of the sections in the 2013 budget is likely to indicate that there is a possibility of reducing the amounts budgeted for them in 2014, and to reallocate the sources which thus become available to enhance other government activities, including those which were pushed off due to initial assessments that there would be a lack of resources. Alternatively, the total expenditures in the budget can be reduced. Additionally, the expenditure level in 2014 is expected to be low due as well to an additional marked decline in interest payments—which are expected to be about NIS 3 billion lower than budgeted—and due to a restructuring of the transportation infrastructure investment plan. In accordance with these assessments, the Ministry of Finance decided to request the approval of the government and the Knesset to cancel the plan to increase income tax rates in the beginning of 2014, effectively passing up about NIS 3.7 billion in revenue, and in parallel to lower the expenditure ceiling in the 2014 budget by NIS

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[19] This aggregate includes Section 13, "Miscellaneous expenses", and Section 83, "Other development expenses". In 2012, Section 83 was budgeted a similar amount to this year's amount, and by year-end was fully utilized. In 2012, Section 13 was allotted NIS 3.5 billion, compared with NIS 4.7 billion this year, and by year end only about 17 percent of the budgeted amount was spent.

[20] Considering one-off tax payments as extraordinary is, to a large extent, a judgment call. Every year the government receives such payments, in respect of large transactions, tax arrangements referring to previous years, and for other items. Thus, considerable care should be taken in labeling them extraordinary. Nonetheless, the revenues noted above are in fact especially large and are extraordinary in their nature. It is important to note that at times, one-off payments even reflect the forwarding of revenues from coming years.

[21] The forecast in the budget included an estimate of NIS 3 billion for revenue from "trapped profits".

3.3 billion. This decrease will also reduce the budgets for coming years, in accordance with the expenditure rule.[22]

The current revenue forecast for 2014, before the cancellation of the increase in income tax rates, is very similar to the revenue forecasts when the budget was approved. Expected tax revenues in 2014, based on the Bank of Israel Research Department's tax model, are projected to be about NIS 3 billion lower than the budget forecast. The Israel Tax Authority hopes to collect part of that amount through various processes to enhance collection.[23] Additionally, based on the current forecast, "other" revenues, mostly loans from the National Insurance Institute, are expected to be about NIS 2 billion higher than forecast in the budget. Thus, cancelling the increase in income tax rates that were to come into effect in the beginning of 2014 means that expected revenues for 2014 are about NIS 5 billion lower than forecast in the budget, or less than that if the Israel Tax Authority efforts to enhance collection are successful.

The revised revenues and expenditure forecast, and the proposed process of cancelling the increase in income tax rates and reducing the expenditure ceiling, bring the expected deficit for 2014 to a level of about 3 percent of GDP, similar to the deficit target set for that year.[24] That is, the government's planned adjustments based on developments since the budget's approval are not expected to increase the deficit to a level greater than the target on which the budget was constructed. Furthermore, it appears that should the revenue path be slightly lower than forecast, the government will be able to reduce the level of actual expenditure somewhat, as well, and thus maintain the appropriate deficit level. The proposed adjustment in the budget thus reflects the government's decision to take advantage of the lower than budgeted actual expenditures in order to reduce taxes, rather than to expand other expenditures or to reduce the deficit more rapidly than planned. This does not preclude achieving the original deficit target for 2014. However, the

process is expected to make achieving the targets set for 2015 and onward more difficult, as detailed below.

5. The expected development of budget aggregates from 2015 and onward

The government budgets for 2015 and onward are subject to 2 targets set in law—the deficit target sets a path of a declining deficit, from 2.5 percent of GDP in 2015 to 1.5 percent of GDP in 2019 (the green line in Figure 6), and the expenditure rule sets the rate of increase in the government's budget each year. The rate of increase is based on the long term growth rate of GDP and the spread between the actual debt to GDP ratio and 60 percent.[25] Meeting the deficit targets will ensure a sustained decline of the debt to GDP ratio to 60 percent by 2020 (the green line in Figure 7) and thus will contribute considerably to the credibility of Israel's fiscal policy and the reduction of the government's interest expenses. With that, the following analysis indicates that meeting these targets will require that the government carry out wide ranging policy measures in the coming years.

Based on existing tax rates, including the cancellation of the plan to raise income tax rates in the beginning of 2014, maintaining the expenditure ceiling at the level to which it is currently proposed to be reduced will not be enough

Figure 6
The deficit as a share of GDP under various policy alternatives: 2012-2020

Deficit ceiling

Tax rates and expenditure as per government proposal from Dec 2013

Tax rates as per gov't proposal of Dec 2013 and expenditure according to gov't plans

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[22] The expenditure rule sets the rate of increase of the government budget each year. Therefore, a reduction of the government budget in one year reduces the expenditure levels for all following years accordingly.

[23] Tax revenues so far in 2013, net of extraordinary one-time receipts, are in line with the forecast presented at the time the budget was prepared.
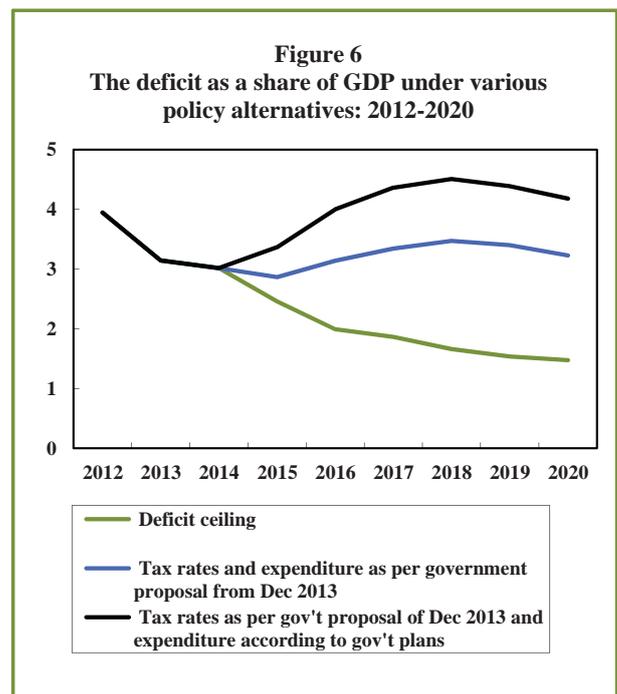
[24] The estimated deficit in shekels, which was presented when budget was approved, was lower than the current estimate by about NIS 2–3 billion. However, since the CBS subsequently increased its estimates of GDP by about 7 percent, the deficit as a percentage of GDP is similar to the original estimate. Legally, there is no significance to a deviation of the actual deficit from the original estimate, since the deficit targets only obligate the government when the budget is being approved, based on the data existing at that time.

[25] The expenditure ceiling is calculated as the product of the real average growth rate over the past 10 years and the ratio between 60 percent and the debt to GDP ratio. All the data in the calculation refer to the most recent data available, not to estimates for the year in which the next budget is being discussed.

to ensure that the deficit does not deviate from its target. In such a case, a deficit of 3 percent of GDP is expected in 2015, compared with a target of 2.5 percent of GDP. In the following years, the deficit is even expected to increase slightly (the blue line in Figure 6) and to widen the gap between it and the declining deficit targets set in law. This deficit path is expected to lead to Israel's debt to GDP ratio remaining virtually unchanged in coming years, staying at a level of 68 percent (the blue line in Figure 7). Thus, a marked tax increase will be required in order to ensure meeting the deficit targets at the same time as maintaining the expenditure ceiling—about NIS 5 billion in 2015 (taking into account the loss of NIS 3.7 billion in revenues due to the decision to cancel the plan to raise income tax rates in 2014), about an additional NIS 10 billion in 2016, and additional increases of about NIS 4 billion each year in 2017 and 2018.[26]

An analysis of the expected level of expenditures in 2015 and following years indicates that despite the decline in interest expenses and the deferral of some of the transportation infrastructure investment programs, estimated government expenditures, based on the cost of the approved plans[27], are about NIS 5.5 billion greater than the (adjusted) expenditure ceiling for that year. This is based on the assumption that from now until the beginning of 2015, the government will not approve additional plans that entail significant budget costs without reducing other expenses.[28] Before the reduction in the expenditure ceiling, expenditures were expected to be quite close to the ceiling, but the reduction creates a more significant gap that will require the government to decide on the cancellation of some of the planned expenditures in order to avoid deviating from the ceiling. The gap between the government's expected expenditures and the expenditure ceiling widens by about NIS 4 billion in 2016 and by an additional NIS 2 billion in 2017. Should government expenditures increase in line with this path, the deficit is expected to increase gradually to more than 4 percent of GDP (the black line in Figure 6) and the debt to GDP ratio will increase slowly but steadily (the black line in Figure 7). Nevertheless, despite being the path which is furthest from the government's targets, it is in

Figure 7
Debt to GDP ratio under various policy alternatives, 2012-2020

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[26] The calculation includes the expected effect of increased taxes on economic activity as estimated in Y. Mazar (2013), "Fiscal Policy and its Effect on GDP and its Components", Bank of Israel Survey 87, page 31–66 (Hebrew).

[27] The increase in government expenditure in accordance with its approved plans assumes that the wage agreements that will be signed in the public sector will approximately maintain employees' real wages. An assessment of the cost of new plans adopted by the government is based in most cases on Ministry of Finance estimations, as they were presented to the government and Knesset.

[28] For example, last week a new plan to extend the school year was presented, with an expected budget cost in 2015 of NIS 350 million, without presenting a parallel reduction in the budget.
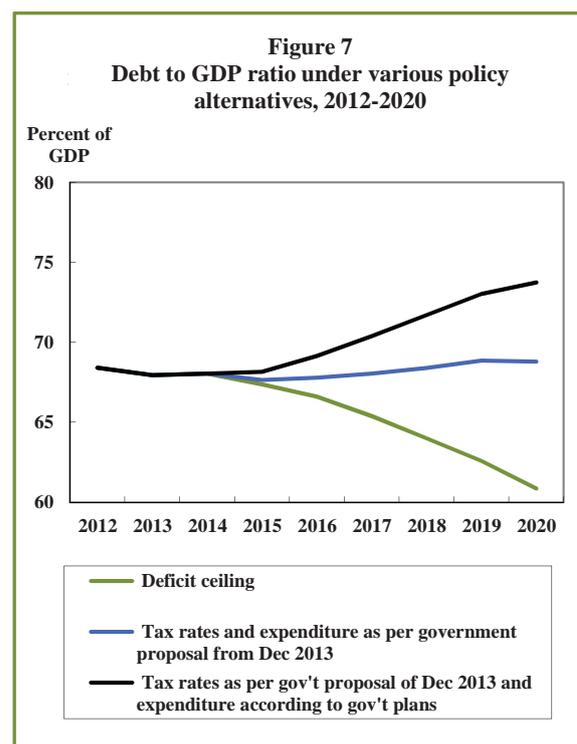
fact that path which indicates how much the government's economic plan of July 2013 improved fiscal control. The path which was set out before the program was approved, based on similar characteristics, indicated that the debt to GDP ratio was liable to increase to more than 90 percent by the end of the decade.

If the government increases its expenditures in accordance with the path derived from the programs it approved, the share of public primary civilian expenditure in GDP is expected to rise gradually until 2017, and to stabilize at around 32.5 percent of GDP (the black line in Figure 8).[29] In contrast, if the government limits its expenditure in order not to deviate from the expenditure ceiling, this share will stabilize at its expected level for 2014, around 31.5 percent of GDP (the blue line in Figure 8). However, as noted, maintaining the expenditure ceiling is not enough to maintain the targeted deficit. Should the government choose to meet the deficit target through increased taxes, it will even be able to slightly increase primary civilian expenditure, since the low deficit

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[29] The calculation of primary civilian expenditure is sensitive to the expected development of defense and interest expenses. The analyses here assume that defense expenditure will increase in line with the multiyear outline adopted by the government. The results are less sensitive to assumptions regarding the development of the path of the interest rate and the adoption of assumptions according to which an increase in interest rates which is markedly slower than assumed under the baseline scenario increases civilian expenditure excluding interest payments at the end of the decade by only 0.3 percent of GDP.

will reduce interest expenses.[30] In contrast, if the deficit target is attained solely through reducing the expenditure ceiling, the ratio of primary civilian expenditure to GDP will decline by almost 2 percent of GDP compared with 2014 (the purple line in Figure 8).[31] The result of such a process would be that real primary civilian expenditure per capita will remain at its current level until 2017, despite the sustained increase in GDP.

In the scenarios above, we assumed that the average real growth rate of GDP in the remainder of the decade will be slightly greater than 3 percent per year. Clearly, to the extent that the growth rate will be greater than that, the adjustment required of the government will be smaller, and vice versa. With that, even if the average growth rate of the economy in the coming years will surprise and be 4 percent per year, the government will still need to carry out adjustments in order to converge to the deficit targets (the black line in Figure 9). Alternatively, if the average growth rate will be 2 percent, the deficit is forecast to increase to 5 percent of GDP (the red line in Figure 9) and the debt to GDP ratio will reach nearly 80 percent.

Figure 8
Share of primary civilian expenditure in GDP under various policy alternatives, 2012-2020

Percent of GDP

— Deficit ceiling with tax rate increases and expenditure ceiling as per gov't proposal of Dec 2013

— Tax rates as per gov't proposal of Dec 2013 and expenditure according to gov't plans

— Deficit ceiling with reductions in the expenditure ceiling and existing tax rates

— Tax rates and expenditure as per government proposal from Dec 2013

Figure 9
The deficit as a share of GDP under various growth-rate scenarios, 2012-2020

Percent of GDP

— Deficit ceiling
— Average growth rate is 4 percent
— Average growth rate is 3 percent
— Average growth rate is 2 percent

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[30] The analysis reflects both the decline in interest payments due to the lower debt itself, as well as the potential effect of a decline in the debt to GDP ratio on the interest rates paid by the government. This is based on an estimated parameter according to which every 1-percentage points decline in the debt to GDP ratio reduces the real interest rate on 10-year government bonds by 0.05 percentage points.

[31] The calculation includes the expected effect of reducing the increase in government expenditures on economic activity, per Mazar above (footnote 11).

Part 2: Broader Review of Selected Issues

The development of educationin Israel and its contribution tolong-term growth

- The average number of years of schooling among the population is an indicator of the stock of human capital in the economy. In Israel, the average among the prime working age population grew from 10.1 years in 1974 to 13.4 years in 2011. This year, Israel is 16th among advanced economies.

- Between 1974 and 2011, per capita GDP grew at an average annual rate of 1.8 percent. Based on estimates of the extent to which the level of education contributes to the economy's production capability (return to schooling), growth in human capital contributed about 0.7 percentage points to the yearly per capita GDP growth. This means that over these years, the increase in human capital was responsible for 40 percent of the increase in the standard of living.

- The contribution of human capital to growth has declined over the years. Long-term prospects point to the rate of increase in human capital and in its contribution to growth continuing to moderate since the long-term increase in the number of years of schooling has been partially spent, there are no expected waves of educated immigrants such as those that took place in previous decades, the weight of population groups that tend to acquire less education is increasing, and the population is aging.

- A simulation that was conducted showed that in the next 50 years, human capital is expected to contribute 0.1 to 0.3 percentage points to growth, and this contribution is dependent mainly on the extent to which the ultra-Orthodox population integrates into higher education in parallel with its integration into the labor force.

1. Introduction

Demographic changes currently taking place are expected to slow the growth rate of the economy compared to previous decades. In particular, it is important to take into account the expected slowdown in the expansion of the non-ultra-Orthodox Jewish population in the prime working age range and the increase in the weight of population groups characterized by a low labor force participation rate—the ultra-Orthodox, Arabs, and those aged 65 and over.

A long-term analysis of the growth rate in economies is based, for the most part, on breaking down growth components into production and productivity factors (growth accounting).[1] Accordingly, when formulating long-term growth projections, it is customary to assess the expected pace of expansion of each production factor alongside that of productivity, and to combine them in an aggregate production function.[2] The basic analysis of sources of growth includes only labor inputs and physical capital stock in the production factors, and this survey expands it to also include the stock of human capital. As we can see, demographic contributions are also expected to affect the stock of human capital. An accepted and practical way to measure the stock of human capital in the economy involves looking at the average years of schooling among the population (or those employed in the economy) together with estimates of the return to schooling—the extent to which the number of years of schooling affects human capital and income.

An evaluation of the return to schooling is a main component of analyses that include human capital. We can measure this yield both through a micro-economic approach and through a macroeconomic approach. The micro approach estimates the contribution made by an individual's number of years of schooling to his labor productivity. (In the absence of a productivity measure at the individual level, we use wages.) The accepted framework is Mincer's (1974) regression, the dependent variable of which is (log) the individual's wages, and the explanatory variables are his characteristics, particularly the number of years of schooling.[3] In the macroeconomic approach, the return to schooling is estimated through cross-sections or panels at the national level, meaning the dependent variable is GDP and the explanatory variables include the average number of years of schooling in the country. There is naturally a tradeoff between the advantages and disadvantages of each approach. The micro approach does not take into account the cross-effects between individuals[4], while the macro approach forces us to make do with a much smaller number of observations and to assume that the same return to schooling exists in the various countries. But since this survey deals with macroeconomic questions, we will base ourselves on the findings of studies

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[1] Solow (1975) first presented this approach.

[2] See for instance Johansson, et al. (2012). These researchers prepared a long-term projection for each country in the OECD, including Israel.

[3] Examples for Israel appear in Zussman and Friedman (2008) and Frish (2007).

[4] In other words, the approach does not take into account how the change in one individual's characteristics affects the productivity of other individuals.

that take the macroeconomic approach. In particular, we will base ourselves on the work of Morrison and Murtin (2010), who found that the return per year of education is about 10 percent, but declines as the number of years of schooling increases. This yield is only slightly higher than the return to schooling that was estimated in the micro approach (wage comparison) of Frish (2007)—about 8 to 9.5 percent. In contrast, it is lower than the yield Zussman and Friedman (2008) found in Israel.[5]

There is a dispute in the literature regarding the question of whether the level of education and human capital also affect the rate of growth of income in economies (as opposed to the level of income) through total factor productivity. Studies such as Barro and Sala-i-Martin (1995a, Ch. 13), Benhabib and Speigel (1994), Kruger and Lindahl (2001), and Acosta-Ormaecha and Morozumi (2013) conducted panel regressions and found positive correlations between the level of education and growth rates, but some of them indicated that the correlation came from developing economies— meaning that the level of education is important to growth when the country is converging with the technological frontier. According to another hypothesis tested by the studies, the benefit that a country generates from education is dependent on both the type of education and the country's location in the convergence process: Primary education is more beneficial in adopting or imitating technologies, while higher education is more important for innovation. Countries that are far from the technological frontier therefore need to invest in primary education, while countries closer to the frontier need to invest in higher education.[6] Since the findings are not unequivocal, this survey relates only to the effect of education on the level of GDP and not to its effect on the rate of growth.

* * *

In Section 2 of the survey, we will briefly present the methodology for calculating the contribution of human capital to growth in Israel. In the third section, we will calculate the average number of years of schooling in Israel and assess its contribution to the development of GDP from 1970 to 2011. In the fourth section, we will present a projection of the average number of years of schooling in Israel, and its expected contribution to economic growth until 2059, based on the demographic projections by the Central Bureau of Statistics and assumptions about how education develops in various population groups. These simulations may contribute to the long-term growth projections that various institutions prepare every so often.

2. The methodology for calculating the contribution of human capital and productivity to growth

Assume that GDP is produced through the use of labor inputs (hours) and the stock of physical and human capital in accordance with a Cobb-Douglas production function that exhibits constant returns to scale:

$$(1) \quad Y_t = A_t K_t^\alpha \left(h_t L_t \right)^{1-\alpha}$$

Where:

Y = GDP

A = Total factor productivity

K = Stock of physical capital

h = Stock of human capital

L = Labor input (hours)

a = The share of capital in GDP

The stock of human capital is measured according to the function proposed by Morrison and Murtin (2010), and which makes a connection between the average number of years of schooling in the economy and the stock of human capital:

$$(2) \quad h_t = e^{S_t r_t}$$
$$r_t = 0.125 - 0.002 * S_t$$

Where:

S = The average number of years of schooling in the economy.

In this formulation, the return to schooling (as a percentage), r, declines gradually as the level of education increases, from 10.9 percent in a country with an average of 8 years

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[5] According to the return to schooling function that we will use, the transition from an average of 12 years of schooling (high school completion) to an average of 15 years of schooling (Bachelor's degree) raises the stock of human capital by 24 percent, and the transition to 17 years of schooling (Master's degree) raises the stock of human capital by 40 percent. In contrast, Zussman and Friedman (2008) found that the transfer from 11–12 years of schooling to 13–15 years of schooling generates a return of 30 percent, and the transition to 16+ years of schooling generates a return of 60 percent.

[6] See Chapter 13 of Aghion and Howitt (2009), Vandenbussche, Aghion and Meghir (2006), and Aghion, Bouston, Hoxby and Vandenbussche (2005).

of schooling to 9.1 percent in a country with an average of 17 years of schooling. Some of the researchers argue that it is more correct to use the number of years of schooling of those employed in the economy. However, since there are fewer databases on the education of employed persons, international comparisons generally relate to the average in the population (of working age or of prime working age). In this survey, we will present for Israel both findings based on the education of employed persons and findings based on education in the population (which will be calculated from Labor Force Survey data).

Given a time series of the average number of years of schooling, we can build a human capital index using equation (2) above. We can also calculate the rate of growth in total factor productivity as a Solow residual from equation (1) with the use of GDP, physical capital and labor input data.

$$(3) \qquad \Delta \log(A_t) = \Delta \log(Y_t) - \alpha \Delta \log(K_t) - (1 - \alpha)\left[\Delta \log(h_t) + \Delta \log(L_t)\right]$$

In order to calculate the Solow residual, we assume that the share of capital in GDP, α, is 1/3.

In the last stage, we will want to calculate the contribution of each component (total factor productivity, human/physical capital, labor input) to the growth rate of per-capita GDP, since this rate reflects the improvement in the standard of living of the Israeli population. For this purpose, we will use the Growth Accounting approach. In contrast with the basic approach, and wanting to reflect as much as possible the overall contribution of the components to GDP, we will relate to the stock of physical capital, K, as an endogenous variable in relation to long-term developments in the other components. In contrast, in the long term, the ratio between the stock of physical capital and GDP, K/Y, is fixed and does not depend on the other components.[7] We will perform a number of simple actions on equation (3) in order for GDP growth to be dependent on the various components, particularly on the capital-GDP ratio. In addition, we will express the equation in terms of per-capita GDP (y) and per-capita labor input (l).

$$(4) \qquad \Delta \log(y_t) = \frac{1}{1-\alpha} \Delta \log(A_t) + \frac{\alpha}{1-\alpha} \Delta \log\left(\frac{K_t}{Y_t}\right) + \Delta \log(h_t) + \Delta \log(l_t)$$

In order to calculate the contribution of each element to growth, we multiply the coefficient by the rate of change of the variable. The contribution of the stock of human capital, as it is reflected in the third component, does not necessarily

account for the entire contribution of education to growth. As we saw in the introduction, some of the empirical literature indicates that the level of education contributes to growth through the total factor productivity component—A. In addition, the scope of education may have an indirect impact on labor input: While it reduces the number of employed persons, since the duration of schooling is extended, it also delays the average retirement age since educated individuals tend to retire later.

3. Calculation of the average level of education and of the contribution of human capital and productivity to growth, 1970–2011.

In the first stage, we discussed Labor Force Survey data, and calculated the average number of years of schooling according to a number of statistical panels, particularly among the working-age population (15 and up) and among employed persons. As part of the calculation, we made a number of adjustments to the Labor Force Survey data in order to partially reflect the average of the number of years of effective education in the labor market. Below, we explain the main adjustments:

a. We limited the number of years of effective education to 22, assuming that from that point onwards, additional education no longer has a significant impact on productivity.

b. We made an adjustment to the years of education for the ultra-Orthodox[8], since yeshiva study appears in the Survey as regular years of schooling, but they do not contribute to human capital in the labor market, and because the lack of core curriculum studies in the ultra-Orthodox schools is expressed by a lack of labor skills following 12 years of education. We limited the number of years of education for ultra-Orthodox men to 10 years, and for ultra-Orthodox women with more than 11 years of schooling, we reduced their total by up to 1.5 years. Following these adjustments, the average number of years of schooling among the ultra-Orthodox population in 2009 was 9.9 years (instead of 14.3) among men and 12.3 years (instead of 13.4) among women. The reduction was calibrated based on wage regressions (on Income Survey data) where the dependent variable is the log of wage and the explanatory variables include the individual's number of years of education, a dummy variable for the ultra-Orthodox and the interaction of the ultra-Orthodox with a number of years of education, while distinguishing between those who have 12 or fewer years

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[7] This is a standard result of models that explain long-term growth, such as the Neoclassical Growth Model. See Chapters 2 and 5 in Aghion and Howitt (2009).

[8] A surveyed individual is considered ultra-Orthodox if the last place of schooling for him or one of his family members was a yeshiva.

of schooling and those who have more than 12 years of schooling.

c. We lowered the number of years of education of immigrants near the date of their immigration, due to the perception that education obtained in their country of origin will only become effective once they acclimatize to Israel. We assumed that in the year of immigration, the education of immigrants with more than 12 years of schooling is equal to the education of a veteran Israel with 3 years less of schooling. However, over the first 10 years in Israel, the immigrant's full education becomes effective. The first reduction was calibrated based on, among other things, wage regressions. The regressions indicate that among immigrants, wages in the year of immigration are about 63 percent (54 percent for women) less than wages for veteran Israelis, and after 10 years, the wages of immigrants are 37 percent (32 percent for women) less. We assume that the wage gap remaining after 10 years does not reflect productivity. This means that in the year of immigration, the productivity component among immigrants is 26 percent (22 percent for women), which is equal to the negative return from roughly three years of schooling.[9]
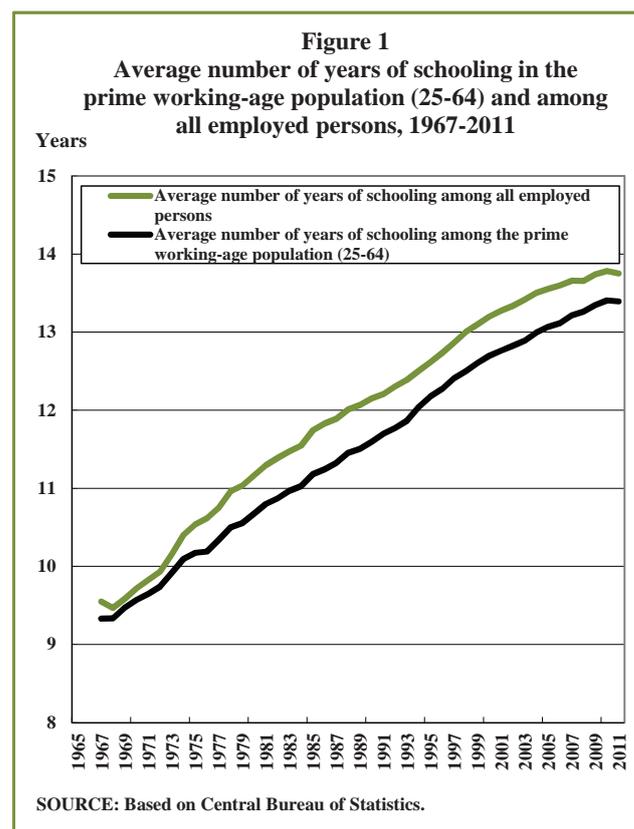
The adjustment for the ultra-Orthodox lowers the average number of years of education in a uniform manner throughout the history, but it is not significant from the standpoint of the rates of change in education that determine the extent to which human capital contributes to growth. (When we made the projection, we found that the adjustment for the ultra-Orthodox has a more significant impact on the long-term growth rate due to the expected growth in their share of the population.) The adjustment for immigrants lowers the average level of education at the beginning of the 1990s, but by the beginning of the 2000s, there was no longer any significant impact on their level of education.

Obviously, these adjustments are only partial, and do not constitute a full adjustment to the quality of their education, which certainly has an impact on the stock of human capital. For instance, we considered also making an adjustment in the effective education in the Arab population, since wage comparisons show that their wages are lower than the wages among the Jewish population. It is very possible that the explanation has to do in part with the fact that the education system in the Arab sector is less effective, or with the fact that their primary language, Arabic, is not common in the labor market. In addition, we did not take into account the

relative position of the quality of elementary education in Israel as reflected in international tests (PIZA), or the fact that a significant part of the growth in higher education in the past decade is based on colleges rather than universities.[10] The combination of these factors in building the historic and expected human capital index is complicated in relation to the adjustments we made, so we decided to leave them for future research.

Figure 1 outlines how the average number of years of education (effective) has developed among the prime working-age population (25–64) and among employed persons in Israel between 1967 and 2011. We can see that between 1970 and 1979, the average increased at a relatively rapid pace, inter alia thanks to the wave of educated immigrants from the former Soviet Union and the expansion of free compulsory education during the 1970s (Kriaf, 2008). Between 1980 and 2000, the average increased quite steadily (excluding a small dip created in the population data at the height of the wave of immigration in the early 1990s). Figure 2 shows the share of those with higher education (excluding yeshiva study) among the working-age population, while distinguishing between those with 13–15 years of schooling (a number that

Figure 1
Average number of years of schooling in the prime working-age population (25-64) and among all employed persons, 1967-2011

Years

- Average number of years of schooling among all employed persons
- Average number of years of schooling among the prime working-age population (25-64)

SOURCE: Based on Central Bureau of Statistics.

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[9]   Eckstein and Weiss (2004) and Cohen-Goldner and Eckstein (2008) indicated that at the time of immigration, the education obtained by immigrants in their country of origin has a negligible return. Furthermore, the return increases over time and as local experience is gained, but does not close the gap with veteran Israelis.

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[10] Zussman, et al. (2007) found that the return to schooling of those with Bachelor's degrees from academic colleges is lower in many study areas than that of university graduates.

reflects a Bachelor's degree) and those with 16 or more years of schooling (a number that reflects advanced degrees). The Figure shows that the average number of years of schooling increased as a result of growth in both the rate of those with 13–15 years of schooling and the rate of those with 16 or more years of schooling. In other words, the scope of those enrolling in higher education was larger than the scope of those continuing to advanced degrees. However, in the 2000s, the picture changes: There was some decline in the rate of increase in the average number of years of schooling, and the share of those with 13–15 years of schooling stabilized while the weight of those continuing to advanced degrees increased.

Figure 2
The share of those with higher education (excluding yeshiva study) among the prime working-age population (25-64), 1979-2011

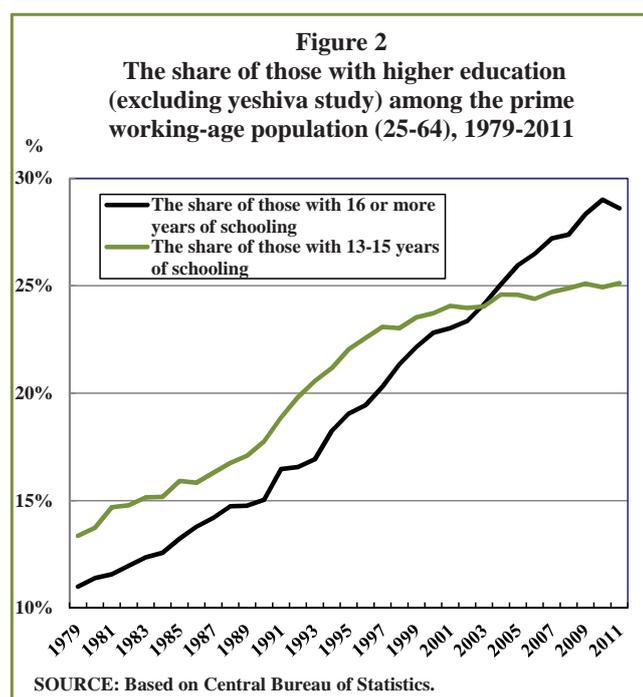SOURCE: Based on Central Bureau of Statistics.

Figure 3 shows the average education in Israel and its development from an international perspective (compared to other developed countries and primary emerging countries).[11] We can see that in 2010, Israel was slightly above the center of the distribution (16th place out of 42 countries), thereby maintaining its relative position of 1970.

Based on the average number of years of education of employed persons in Israel (as presented in Figure 1), we built a human capital index using equation (2) above. We extracted total factor productivity from equation (3). For that purpose, we used annual GDP data at fixed prices, gross

[11] The data are taken from OECD research (Johansson, et al., 2012). Israeli data do not exactly match the data calculated in this survey since the OECD research does not include the adjustments to the Labor Force Survey data that were described above.

physical capital data (Bank of Israel data) and labor input data (hours), as well as the assumption that the weight of labor compensation out of GDP (1- α) is 0.67.

Table 1 summarizes the increase in each of the sources of per-capita growth during selected periods. In the final column, it also shows the rate of growth in total factor productivity when human capital is not integrated into the production function. It is interesting to see that the decline in the growth rate of years of education reconciles with the decline in the per-capita growth rate between the 1970s and 1980s, meaning that in those two decades, total factor productivity grew at a similar rate (0.7 percent to 0.9 percent). If we divide the 1970s into the period prior to 1974 and the period following 1974, a year in which there was a break in the growth rate, the increase in the average number of years of education is less in line with the changes in the growth rate. However, we must remember that in short periods, it is the business cycle that plays a main role in the growth rate. Moving to the 1990s, inputs increased rapidly compared to GDP (thanks to the wave of immigration in the 1990s and the investments that came with it), and the stock of human capital increased like in the previous decade—such that it resulted in a moderation of one percentage point in the growth rate of productivity according to the two calculations (meaning taking into account human capital, and excluding it). In the 2000s, the growth rate declined, accompanied by a sharper decline in the growth rate of overall inputs, including the stock of human capital. As such, growth in total factor productivity returned to a positive pace, similar to the pace prior to the 1990s. In other words, except for the 1990s, there was growth of between 0.7 percent and 0.9 percent in total factor productivity taking into account the stock of human capital, in each decade.

Figure 4 shows the contribution of each component to total per-capita growth. The Figure shows that since the 1970s, the increase in the average number of years of education contributed a total of about 0.8 percentage points to annual growth—about 40 percent of total growth. However, over the years, the growth rate of the average number of years of education moderated, which led to a decline in its contribution. In the 2000s, the contribution of education totaled 0.4 percentage points (about 20 percent of total per-capita growth).[12] As we can see in the next section, this contribution is expected to continue moderating for at least the next few decades.

[12] The estimate of the contribution of the stock of human capital is not particularly sensitive to how the stock of human capital is calculated. It makes no difference whether we choose employed persons rather than population, the main working ages (25–64) or total working ages (15 and above), with the adjustments for the education of the ultra-Orthodox and immigrants or with unadjusted data.

Figure 3
Average number of years of schooling in the populations of selected countries, 1970 and 2010

SOURCE: Johansson, et al. (2012)
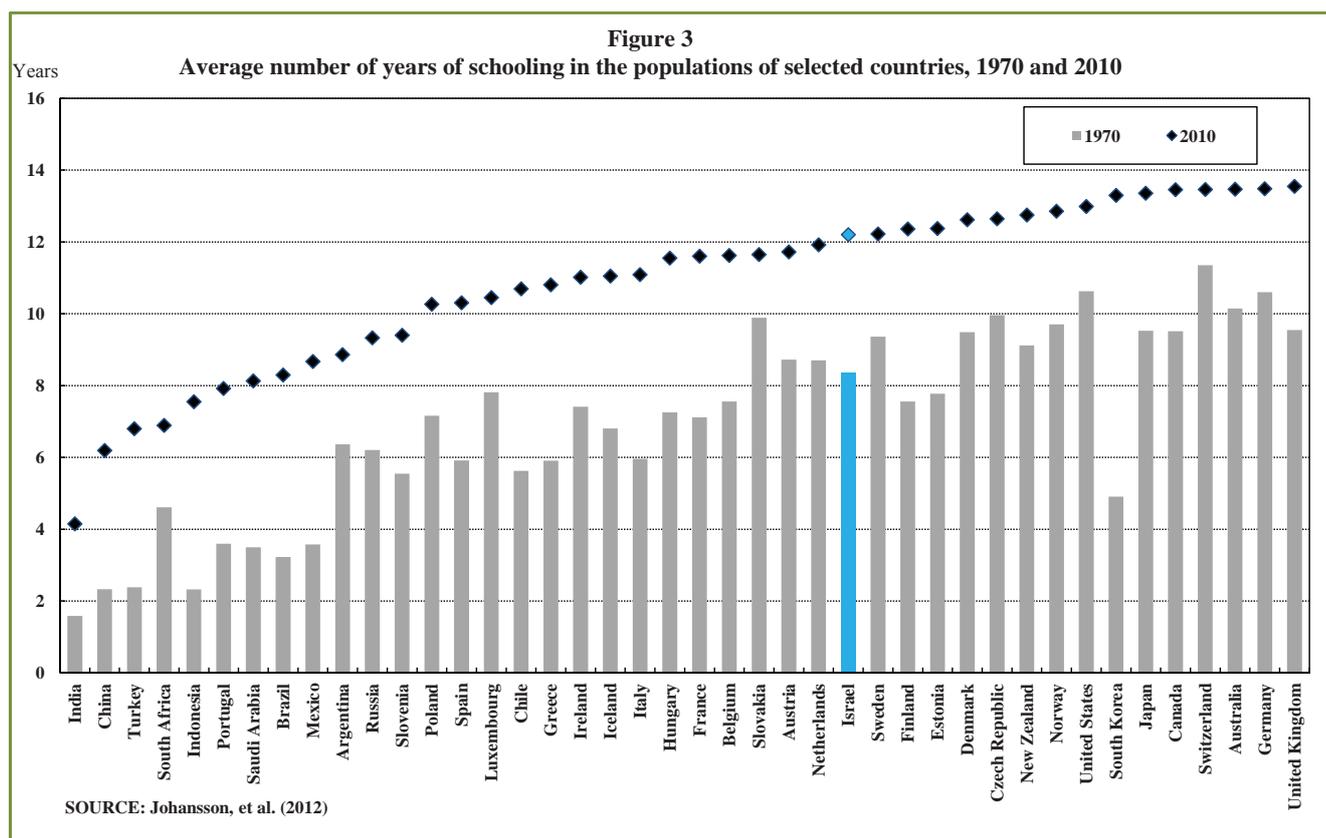
Table 1: GDP growth and its sources during main periods: work hours, stock of human and physical capital, and total factor productivity

	GDP	Population	Per-capita GDP	Per-capita work hours	Stock of human capital	Stock of physical capital	Total factor productivity	Total factor productivity excluding education
	Y	POP	y	l	h	K	A	
1970–1979	5.7%	2.8%	2.9%	-0.8%	1.2%	8.0%	0.9%	1.8%
1974–1979	3.3%	2.3%	0.9%	-0.2%	1.0%	6.5%	-1.0%	-0.3%
1980–1989	3.4%	1.8%	1.5%	-0.5%	0.8%	3.7%	0.7%	1.2%
1990–1999	5.3%	3.1%	2.2%	1.7%	0.8%	5.5%	-0.3%	0.2%
2000–2009	3.8%	2.0%	1.7%	0.1%	0.5%	3.4%	0.9%	1.2%
1970–2011	4.6%	2.4%	2.1%	0.2%	0.8%	5.0%	0.6%	1.1%
1974–2011	4.1%	2.3%	1.8%	0.4%	0.7%	4.6%	0.3%	0.8%
1980–2011	4.2%	2.3%	1.9%	0.5%	0.6%	4.1%	0.5%	0.9%
1990–2011	4.6%	2.5%	2.1%	1.0%	0.6%	4.3%	0.4%	0.8%
2000–2011	4.0%	2.0%	2.0%	0.3%	0.4%	3.4%	1.1%	1.3%

Figure 4
Production inputs and total factor productivity and their contribution to GDP growth in concentrated periods

SOURCE: Based on Central Bureau of Statistics.
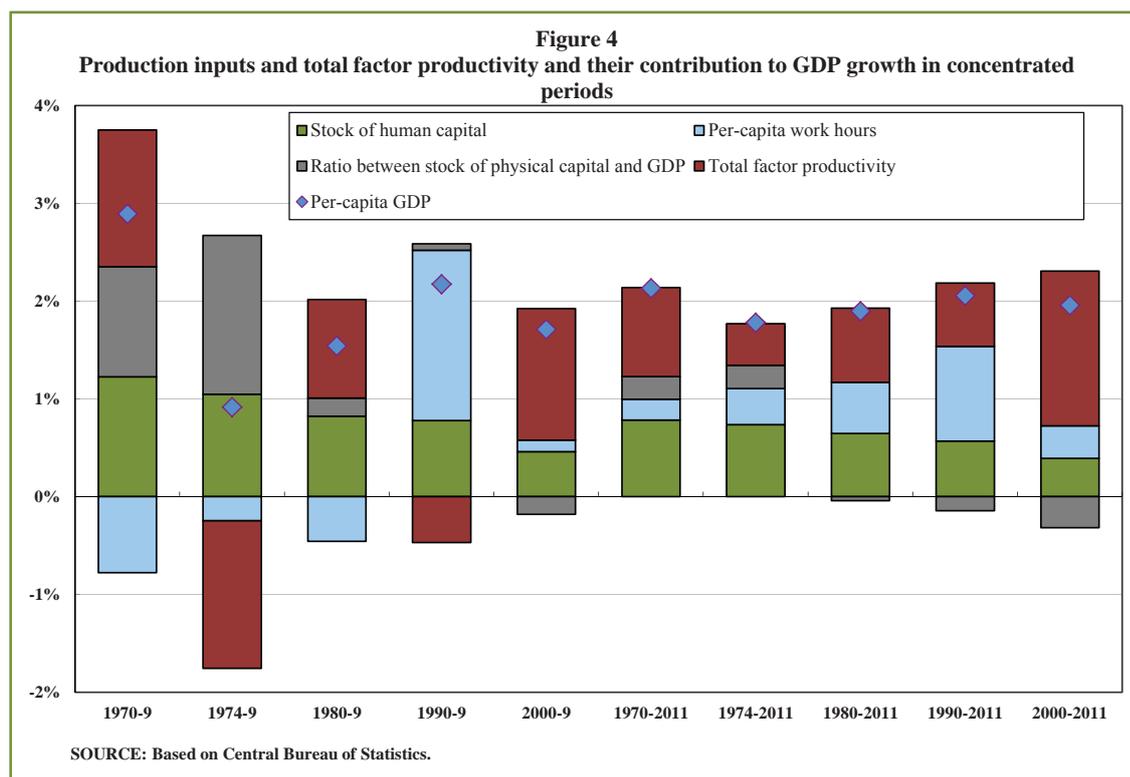
4. Projection regarding education and the stock of human capital, 2009–2059

Since over the past forty years, education has made a considerable contribution to GDP, we would like to evaluate what its contribution in the next few decades will be. In this section, we will present a long-term projection regarding the development of the average number of years of schooling among the adult population and among employed persons. The projection is built bottom-up: We project the average number of years of schooling of 84 population (or employed person) sub-groups created by dividing by gender, dividing into 14 age groups and 3 religious groups (ultra-Orthodox Jews, Arab, and non-ultra-Orthodox Jews). We weight the education of the sub-groups to arrive at an aggregate projection by the expected weight of each sub-group in the population or among employed persons. The projection regarding the size of the population at any given time relies on the intermediate scenario in the detailed demographic projection made by the Central Bureau of Statistics for the years 2009–2059 (Paltiel, et al., 2012). In order to evaluate the weight of each sub-group among employed persons, we must make assumptions regarding the labor force participation rate and the unemployment rate as well. We based ourselves on the assumptions detailed by Braude (2013).

The point of departure for projecting education among the population is the average number of years of schooling in each sub-group in the population in 2009, as these data appear in the Labor Force Survey. Here too, we made adjustment in the education of the ultra-Orthodox and immigrants. The number of years of schooling of each sub-group develops in line with assumptions regarding the number of years of schooling over the long term, and regarding the rate of convergence to it. For the most part, we assume that among non-ultra-Orthodox Jews in the younger age range (25–34), 1 percent of the gap in the number of years of schooling will be closed each year compared to the long-term situation in which we reach 18 years of schooling before age 30. Clearly put, this assumption leads to the average number of years of schooling among women aged 30–34 in 2059 being a projected 16 (compared with 14.8 today).[13] In terms of older ages—we assume that each cohort will continue to close the gap between 18 years of schooling and the number of years of education accumulated by age 30–34, at a very slow rate (0.5 percent per year). We assume that the young Arab population (15–29) will close 3 to 5 percent of the

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[13] The assumption that in the long term, the average number of years of schooling will be 18 was also used by the OECD in its projections for member countries. Our use of this assumption enables us to compare the results of our projection with the OECD's projections for other countries. Selecting 16 years of schooling for Israel does not significantly change the results regarding education's future contribution to growth.

gap between it and the parallel non-ultra-Orthodox Jewish population each year. With these assumptions, by 2059 only negligible gaps will remain between the years of schooling of non-ultra-Orthodox Jews and young Arabs. At older ages, gaps will remain.
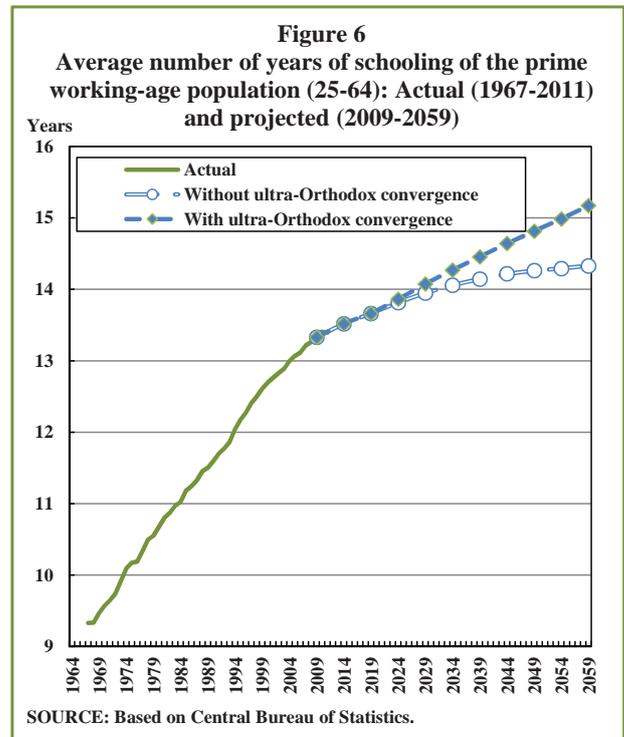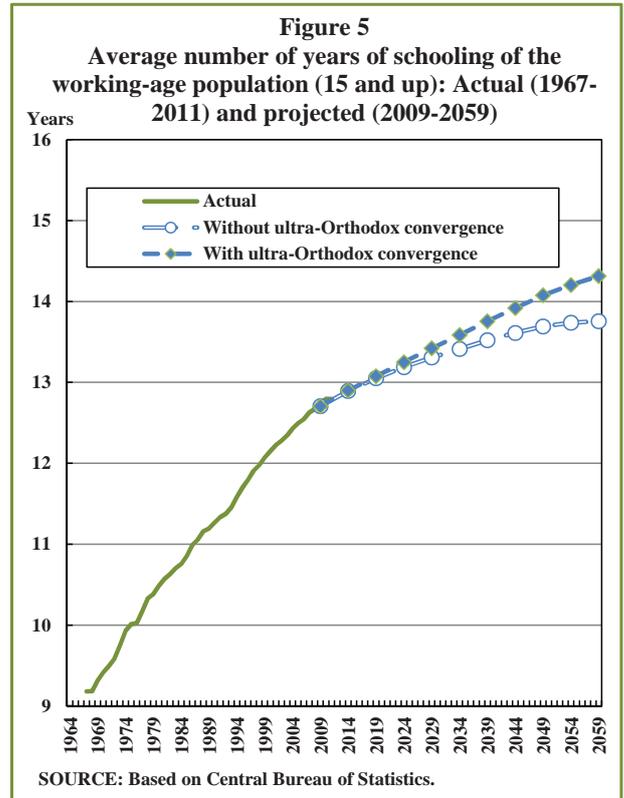
In terms of the ultra-Orthodox population, we assessed two alternatives. In the first, the ultra-Orthodox remain with the currently existing number of years of schooling (after the adjustment to the years of effective schooling) throughout the projection period. In other words, the ultra-Orthodox population does not continue advancing toward education that is more effective in the labor market. In the second alternative, we assume that there will be convergence in the education of the ultra-Orthodox population: Starting with the group that has reached the 15–19 age range in 2009, 10 percent of the gap between the ultra-Orthodox population and the young (up to age 34) non-ultra-Orthodox Jewish population will be closed each year. With these assumptions, the average number of years of schooling for ultra-Orthodox men aged 30–34 will be 15.5 in 2059, just 0.3 years lower than the average among non-ultra-Orthodox Jews. (At the point of departure, the average among ultra-Orthodox men is 10 years, and among non-ultra-Orthodox Jews, it is 14.3 years.)

The calculation of the average number of years of education among employed persons is a somewhat more complex task. Regarding each sub-group, we assume that education will develop and converge in accordance with the assumptions we made regarding the general population—until the growth in employed persons in the sub-group reaches the natural growth rate of the population. More accelerated growth in the number of employed persons in a sub-group (meaning growth in the employment rate of the sub-group) will result from the stock of the population, which—naturally—has a lower average number of years of schooling. To illustrate, policy that is intended to integrate the ultra-Orthodox or the Arabs into the labor force leads to a slowdown in the average number of years of schooling, since those newly joining the labor force are less educated than existing employed persons.

In general, we selected assumptions that were outlined—in particular assumptions regarding the development of the education of non-ultra-Orthodox Jews and regarding the rate of convergence of the Arab population—based on findings concerning how education has developed in the past decade by group, and because these are in the spirit of the assumptions upon which the OECD's long-term projection was based.

Figures 5 to 7 outline how the number of years of schooling is expected to develop among the general working-age population (15 and up), among the population in the prime

working age range (25–64) and among employed persons (aged 15 and up).

Figure 5
Average number of years of schooling of the working-age population (15 and up): Actual (1967-2011) and projected (2009-2059)

SOURCE: Based on Central Bureau of Statistics.

Figure 6
Average number of years of schooling of the prime working-age population (25-64): Actual (1967-2011) and projected (2009-2059)

SOURCE: Based on Central Bureau of Statistics.

Figure 7
Average number of years of schooling among employed persons: Actual (1967-2011) and projected (2009-2059)

Years

Legend:
— Actual
—○— Without ultra-Orthodox convergence
--◆-- With ultra-Orthodox convergence

SOURCE: Based on Central Bureau of Statistics.

The figures show a number of interesting findings. First, regardless of the scenario concerning convergence of the ultra-Orthodox, the average number of years of education is expected to increase in the next 50 years at a slower rate than it did in the past 40 years. The moderation is the result of four main factors:

1. Forty years ago, the average level of education among the population was 9.5 years—lower than high school education. There was therefore room for rapid growth in the average number of years of schooling. In contrast, in 2009 the average number of years of schooling was already 13 years—meaning between full high school matriculation and a Bachelor's degree—and there was less room for rapid improvement.

2. The last forty years featured two waves of educated immigrants (at the beginning of the 1970s and the beginning of the 1990s).

3. Demographic projections expect relative growth of the ultra-Orthodox and Arab populations, groups that have lower levels of education at the point of departure. In addition, growth among these population groups in the labor force participation rate will lead to a more significant increase in their weight among employed persons, and to a decline in the average number of years of education among employed persons.

4. Demographic projections expect an aging of the working-age population—meaning an increase in the weight of adults (55 and up)—a population group that is characterized by a low average number of years of schooling.

The two last factors—the increase in the weight of Arabs, ultra-Orthodox and older workers—also derogates from per-capita GDP through labor input, since these population groups are characterized by relatively low labor force participation rates.

Another interesting finding shown by the figures is the importance of ultra-Orthodox convergence. Without convergence, the average number of years of education comes to a standstill in the second half of the projection period. However, with convergence, the increase in the average number of years of schooling continues even at the end of the projection period, and the aggregate level of education is about half a year to a year higher. In this context, we note the finding that at the end of the last decade, the gap between the share of those graduating high school who passed the university admissions benchmark and the share of those starting academic studies was closed.[14] In other words, without a change in primary and secondary education, the average number of years of education can only continue to grow if the population that customarily obtains higher education extends the duration of studies. If change is made to primary and secondary education that increases the share of those passing university admissions benchmarks, it will enable an increase in the average number of years of education by increasing the share of those with higher education.

When combining the results of the simulation we carried out for Israel with the OECD projections for the other comparison countries, we find that without ultra-Orthodox convergence, Israel is expected to fall from 16th place to 26th in rankings based on the average number of years of schooling among the population. In contrast, convergence of education among the ultra-Orthodox as outlined in our scenario is expected to put Israel in 18th place, close to its current position.

Table 2 shows how the stock of human capital contributed to Israeli growth in earlier years, and how it is expected to contribute according to projections.

The Table shows that the contribution of increased education to long-term growth (in annual terms) has already

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[14] See Box 5.1 in the Bank of Israel Annual Report for 2012.

declined from 0.8 percentage points in the last 40 years to 0.4 percentage points in the past decade. According to projections, this contribution is expected to continue declining to just 0.1–0.2 percentage points if there is no convergence in the education of the ultra-Orthodox. The expected contribution of education to growth will decline relative to the previous decade, primarily as a result of the increase in the weight of population groups with low levels of education, and as a result of the expected change in the age composition of the population: The weight of the population in the prime working ages (25–64) is expected to decline from the current 47 percent to 42 percent in 2059. Each of these two factors takes away 0.1 percentage points from the aggregate contribution of education to growth.

The Table also shows that if the education of the ultra-Orthodox population converges toward that of the non-ultra-Orthodox Jewish population, the contribution of the increase in education to growth will be 0.1 percentage point higher than the scenario without convergence. While this difference seems small in terms of the growth rate, after 50 years, the expected level of production with convergence is 5 percent higher than the expected level in the scenario without convergence. In current terms, it is equal to NIS 50 billion of annual revenue in the economy, or NIS 6300 per capita. In other words, there is considerable economic importance to integrating the ultra-Orthodox in education (increasing the total years of education that is effective in the labor force) alongside integrating them into the labor force.

In order to maintain the contribution of human capital to growth as we have seen in the past decade (and to improve Israel's relative position in the index of the average number of years of schooling among the population), we must also act to expand the scope and quality of higher education among non-ultra-Orthodox young people, at a higher rate than we have seen in the past few years, particularly in view of the aging of the population and in view of the declining return to schooling on an aggregate level. As such, we must strengthen the secondary education system so that the rate of those completing high school who pass the admissions benchmark to universities increases, and we must improve the study programs at colleges so that their returns will become equal to that of the universities. By way of illustration, if by 2059 Israel manages to catch South Korea as the leader in the average number of years of schooling among developed economies by increasing the average number of years by two additional years, the average growth rate during those years will increase by 0.4 percentage points compared to the scenarios presented.

Table 2: Contribution of human capital to GDP growth, actual (1970–2011) and projected (2009–2059)

Employed pesons / population	Population		Population		Employed persons	
Ages	15 and up		25–64		15 and up	
Convergence among the ultra-Orthodox	No	Yes	No	Yes	No	Yes
1974-2011	0.6		0.7		0.7	
2000-2011	0.5		0.5		0.4	
2009-2034	0.2	0.3	0.2	0.3	0.1	0.2
2034-2059	0.1	0.2	0.1	0.2	0.0	0.2
2009-2059	0.2	0.2	0.1	0.3	0.1	0.2

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Home purchasing patterns by domestic investors, 2003–12[1]

- Between 2007 and 2009, there was a marked increase both in the share of domestic investors' transactions out of residential purchase transactions, and in their absolute number. The increase began even earlier in the center of the country, and moved gradually into the periphery.

- In 2011 and 2012, measures were taken to reduce the worthwhileness of such purchases for investors. As a result, there was a sharp decline in the volume of their activity: At the end of 2012, the likelihood that an apartment was purchased by an investor was only about 90 percent of what it was before the measures were enacted.

- It was found that investors purchase relatively small homes, and this pattern has strengthened over time. With regard to the socioeconomic background of the neighborhood in which the home is located, we found that investors' preference is similar to that of other purchasers, and the prices they pay are similar to the prices paid by other purchasers for similar homes.

- It was also found that when the yield on renting an apartment increases by one percentage point, the likelihood that a given home will be bought by a domestic investor rather than by another purchaser increases by 22 percent. When the interest rate rises by one percentage point, the likelihood declines by about 8 percent.

Between the years 2003 and 2012 the share of households owning two or more homes increased from 3.2 percent to 7.9 percent.[2] It appears that most were domestic investors[3] ("investors" below) and their activity in the housing market is important for several reasons. First, close to one-quarter of households live in private rentals[4] (the past decade saw an increase in this number of about two percentage points), and the decisive majority rent homes from investors.[5] Second, investors' demand for homes has a marked effect on real estate prices, since the investors "clear the market": Their activity is motivated—to a greater extent than the activity of others—by economic considerations, so that it is relatively volatile. Demand by the public at large, in contrast, is influenced primarily by demographic developments, the level of income, and so forth, and thus is relatively stable. The result is that on the margins, investors make a significant contribution to the development of housing prices. Finally, financial market returns have a significant effect on investors, and their activity may indicate the prevalent estimations in the market concerning future home prices and rental prices.

As such, this survey tracks investors' purchases over the past decade (2003–12) and presents their typical patterns.[6] The survey is based for the most part on calculations on the Israel Tax Authority's file of residential home transactions (real estate price file – REPF). The file contains information on the purchase date, type of purchaser, characteristics of the home, its price, and so forth. During 2006 and the beginning of 2007, there was a marked improvement in the coverage of transactions included in the file, and such coverage has since been full.

The share of investors' purchases developed during the period of the study as follows (see Figure 1): During 2003, there was an increase, perhaps due to the imposition of a capital gains tax in the capital market.[7] From 2004 to 2006, it was more or less stable, at about 26 percent of all transactions.[8] Toward the end of 2007, the share of purchases began to climb because the global crisis led to a prolonged decline in

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[1] Earlier surveys of the issue appear in: Bank of Israel (2012), *Annual Report 2011*, "The main developments in the market for investment homes in recent years" (Box 2.3); Galit Ben-Naim (2009), *Report of the State Revenue Administration 2008*, "Purchasers of investment apartments—characteristics and trends" (Chapter 19), Ministry of Finance, State Revenue Administration.

[2] Central Bureau of Statistics (2013), "Housing in Israel: Findings from the Household Expenditures Survey 2012", press release issued March 30, 2013. It is likely that some are moving to different accommodations but have not yet sold their first home.

[3] In this survey, "domestic investors" refers to owners of a second or additional home, who are not nonresidents. The group does not include those who are moving to different accommodations but have not yet sold their first home. (Those who end up not selling their first home will retroactively become domestic investors).

[4] More on this appears in Bank of Israel (2011), *Recent Economic Developments, 131, May–August 2011*, "The Private Rental Market in Israel".

[5] Additional landlords include households that own one apartment and rent it out while renting concurrently, as well as public entities (such as housing companies) and businesses.

[6] The classification of the purchaser is set by the Israel Tax Authority, and is not available to us prior to 2003. The data published by the Ministry of Finance are somewhat different, since they are based on a different source of information. In order to analyze investors' sale patterns—thereby assessing their **net** demand (meaning purchases minus sales) and their effect on the supply of rental homes and on home prices and rental prices—and in order to analyze the socioeconomic characteristics of the investors, a separate broad discussion is required.

[7] Furthermore, since the beginning of 2003, the State of Israel has imposed a tax on Israelis' income from rentals abroad, and it is possible that this diverted investments to homes in Israel. In April 2003, there was a sharp decline in the share of investors' transactions, which is connected with the outbreak of the Second Gulf War.

[8] In 2005 and 2006, the exemption from tax on rental income from residential homes (rented out by individuals) was gradually reduced: In 2004, the tax-exempt income ceiling was NIS 7,390, and in 2006 it was NIS 3,830 (in current prices). This measure was supposed to reduce the worthwhileness of investment homes, but it seems that adherence to the law was only partial due to difficulties in enforcement.

the value of financial assets and in interest rates, as well as a strengthening of the estimation that investment in real estate was worthwhile compared to other channels. At the height of the crisis, the absolute number of transactions declined for a short period.

Figure 1
Home purchases by investors, 2003-12 (Quarterly)

SOURCE: Ministry of Finance.
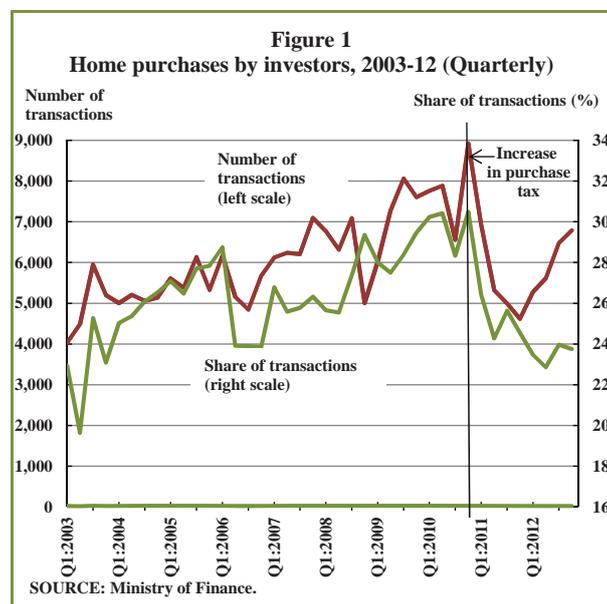
In 2011 and 2012, tax and credit policy measures came into force, which were intended to reduce demand for investment homes. In February 2011, the purchase tax rate on homes purchased for investment (not necessarily by domestic residents) was increased for 2011 and for 2012: For homes with a value of up to NIS 1 million, the tax rate was raised from 3.5 percent of the home's value to 5.0 percent; for homes with a value between NIS 1 million and NIS 3 million, the rate was raised from 5.0 percent to 6.0 percent; and for more expensive homes, the rate was raised from 5 percent to 7 percent.[9,10] This measure led to many purchases being

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[9] In 2013, the tax rates remained in place, and for the period from August 2013 to the end of 2014, an additional purchase tax bracket was set, at 10 percent, for investment homes worth more than NIS 15 million.

[10] Between 2003 and 2010, the purchase tax burden placed on the owners of two or more homes increased relative to the burden on the owner of a single home, because starting in the middle of the last decade, differential updates were made to the level of the purchase tax brackets and an exemption from purchase tax (up to the ceiling) was given for a single home. The tax on the purchase of a second home or more was 3.5 percent of the price of an average home in the economy throughout the entire period, while in the case of a single home, the rate declined gradually, from about 1 percent in 2003 to 0 from 2007 onwards. Over the same years, the lower boundary of the purchase tax imposed on investors (3.5 percent) was updated based on the Consumer Price Index, while the rate of increase of home prices was much more rapid. Therefore, the tax burden on the purchase of relatively expensive homes increased.

brought forward toward the end of 2010, once the expected measure was announced.

In February 2011, an exemption from betterment tax came into effect for those selling a second and third home in 2011 and 2012, even if four years had not yet elapsed from the date on which they bought a home. This measure was supposed to increase the supply of homes and restrain the price increases, thereby minimizing the expected capital gain of those purchasing homes for investment. At the end of May, the Minister of Finance announced that the exemption from betterment tax on homes for investment would be cancelled at the beginning of 2013. (The tax rate is 20 percent of the real profit.). In August 2011, the Knesset decided to leave the exemption in place, but it extended the holding period required in order to get it from 4 years to 8 years.[11]

Beginning in November 2012, the Supervisor of Banks at the Bank of Israel limited the loan to value ratio of mortgages: For investors it was limited to 50 percent, for those purchasing a first apartment it was limited to 75 percent, and for other purchasers it was limited to 70 percent.[12]

In addition, measures were adopted following the social protests of the summer of 2011: The Knesset enacted laws and the government instituted programs intended to increase the supply of homes and lower their prices.

As a result of these policy measures, the number of investors' transactions contracted, as did their share of total transactions. At the end of the reviewed period, the number and rate have not returned to their level prior to the tax increase.

From the second half of 2011 onward, after interest rates in the economy—as well as forward interest rate expectations—began to fall, the number of homes purchased by investors (as well as by others) again increased.

Figure 2 is based on the estimations detailed below, and presents the likelihood that an investor—rather than someone else—has purchased a given home in a certain month, and compares that to the likelihood in June 2010, before the decision was made to increase the purchase tax and before the other policy measures were taken. The picture provided by the Figure is in line with the developments described above and with the changes in the rate of investors' transactions

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[11] More on this appears in Bank of Israel (2011), *Recent Economic Developments, 131, May to August 2011*, "Analysis of land betterment tax measures taken in 2011 to moderate the increase in home prices".

[12] It should be noted that beginning in May 2011 the Supervisor of Banks limited the variable-rate share of a mortgage to one-third of the total loan. This applies to all home buyers.

out of total transactions[13] (Figure 1). In 2011 and 2012, the relative likelihood that an investor had purchased a home was about 90 percent of the likelihood before then, similar to the likelihood between 2003 and 2007.

Figure 2
The likelihood that a home was purchased by an investor compared to the likelihood in June 2010[a], 2003-12

SOURCE: Israel Tax Authority and Bank of Israel Calculations.
a) Based on the month-year coefficients in Model 1 Table 1 below.
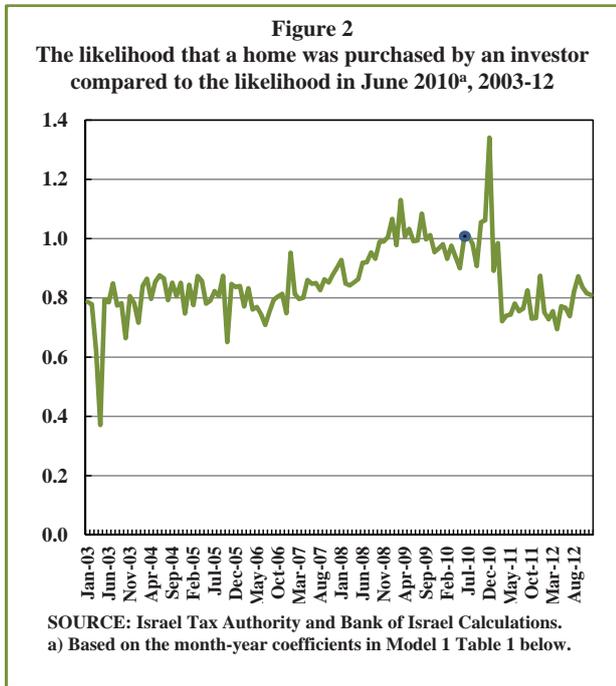
An analysis of the geographic characteristics of the homes purchased by investors leads to the following findings. The share of purchases in the center of the country (Tel Aviv and central districts) out of total purchases by investors expanded greatly in 2005 and 2006 (Figure3). Starting in 2006, relative activity by investors in the periphery increased, beginning in the south and continuing to the north and Haifa districts. Between 2006 and 2009, the relative prices of homes in the center increased greatly and generated capital gains, with a similar phenomenon taking place in the periphery in the period following. Furthermore, yields on renting out homes declined throughout the country, although they remained relatively high in the north even during the second half of the last decade. On this basis, we can assume that investors expanded the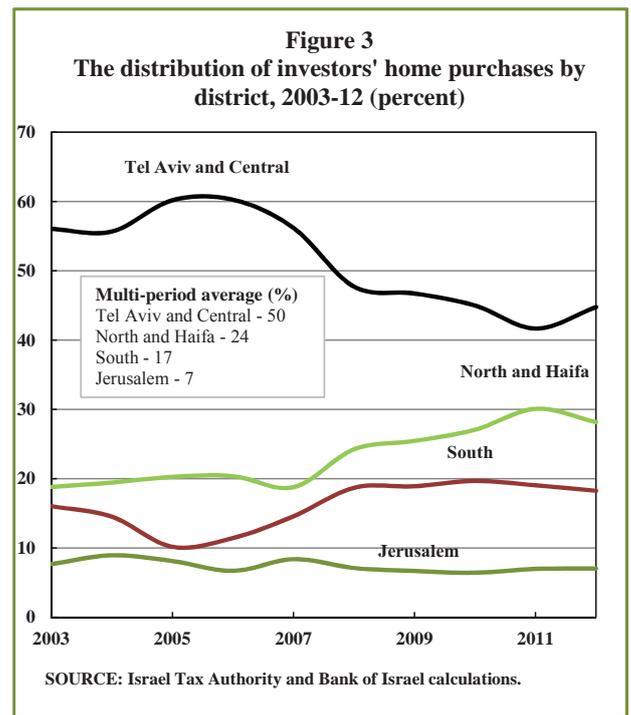ir activity in the periphery, inter alia because they identified opportunities there to earn capital gains and an adequate yield from rentals, at least in the north of the country.

Throughout the entire reviewed period, the share of investors' purchases in the Tel Aviv district out of total

purchases in the district (about 29 percent) was much higher than the shares in the rest of the country, apparently due to strong demand for residential rentals. This also applies to a certain extent to the Haifa district. In contrast, the rate is relatively low in Jerusalem—where there is a high representation of purchases by foreign residents—and in the central district (20 percent), where there is lively activity by those purchasing a first home or those upgrading their housing. Between 2007 and 2010, there was an increase in the rate of investors' purchases throughout Israel, but mainly in the periphery, and after the policy measures mentioned above were adopted, the trend reversed.

Figure 3
The distribution of investors' home purchases by district, 2003-12 (percent)

Multi-period average (%)
Tel Aviv and Central - 50
North and Haifa - 24
South - 17
Jerusalem - 7

SOURCE: Israel Tax Authority and Bank of Israel calculations.

As Figure 4 indicates, investors are highly represented among those purchasing apartments in Tel Aviv–Jaffa and the rest of the Gush Dan area (red columns), and in a number of peripheral communities (green columns). Figure 4 shows that between 2003 and 2012, the share of investors out of total purchasers in a community increased in the periphery and declined in communities in the center of the country.

Relative to all purchasers, investors tend to purchase smaller homes, with 1.5 to 3 rooms, and this tendency has increased since the middle of the last decade (Figure 5). Over the reviewed period, home prices increased at a similar rate in all home size groups, but the yield on the rental of small homes declined at a more moderate rate than the yield on the rental of 3.5 to 4 room homes. For example, during the first half of 2003, the yield in these two groups was slightly

Figure 4
Share of investors' home purchases out of total purchases in selected communities
A. Average 2003-12[a] (percent)
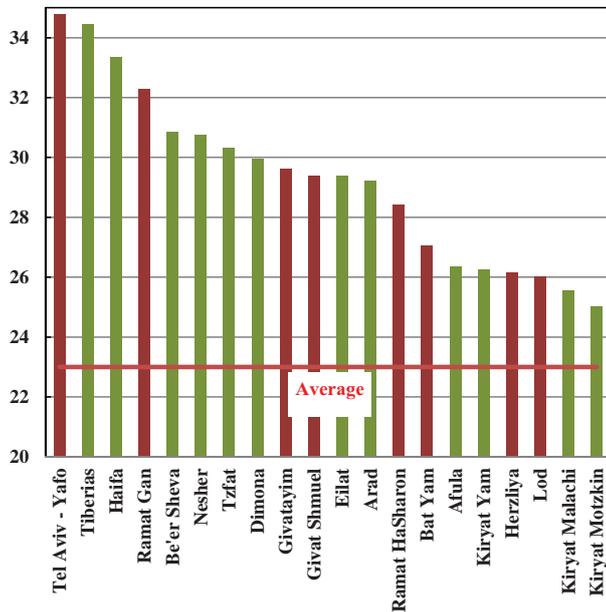
B. 2012 compared to 2003[b] (percentage points)
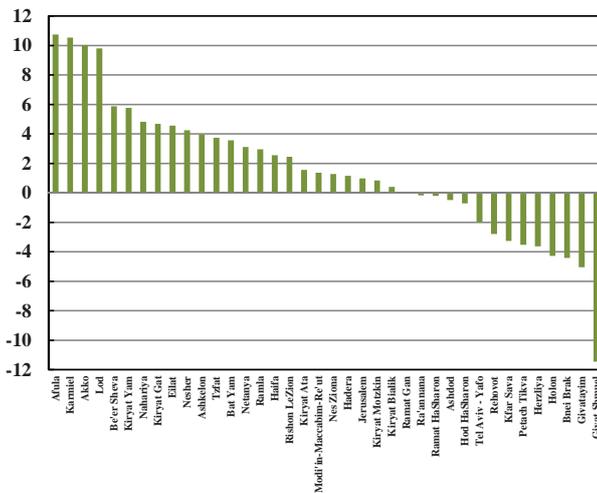
SOURCE: Israel Tax Authority and Bank of Israel calculations.
a) The 20 communities with the highest rate (in communities where there were at least 50 transactions during the period).
b) Communities where there were at least 50 transactions in each of the years between 2003 and 2012.

more than 5 percent, while by the second half of 2012 it had declined by about 1 percentage point for small homes, and by 1.5 percentage points for 3.5 to 4 room homes.[14]

Figure 5
Home size specific share[a] of investors' purchases, 2003-12
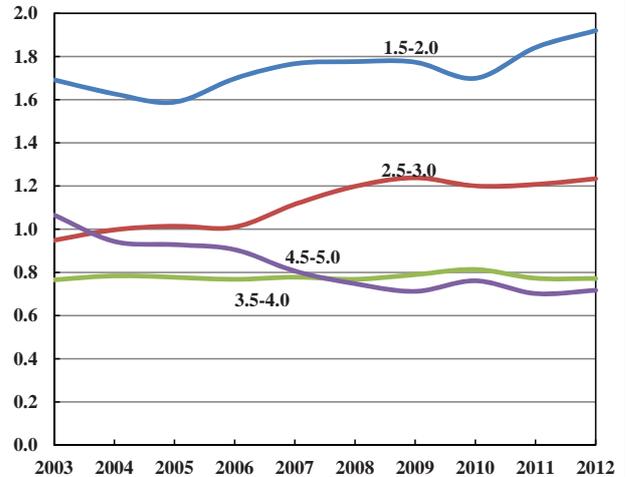
SOURCE: Israel Tax Authority and Bank of Israel calculations.
a) The home size specific share is calculated as follows: [total homes of a given size purchased by investors, divided by total homes purchased by investors] divided by the parallel quotient among all home purchasers.

In order to assess the factors affecting the likelihood that an investor—rather than another purchaser[15]—has purchased a given home, we carry out logit estimations. The results are presented in Table 1. Investors tend to purchase homes that are smaller than the typical 3.5 to 4 room home, assuming all else remains the same (see also Figure 5 above): The likelihood that an investor will purchase a 1.5 to 2 room home is 2.59 times higher than the likelihood that others will purchase such a home (see Model 1). They have no preference regarding the age of the home, and they also do not prefer a first-hand home over a second-hand home (not shown). Investors have a strong tendency to purchase homes in the Haifa and Tel Aviv districts, a less-strong tendency to purchase in the periphery, and a relatively weak tendency to purchase in the central and Jerusalem districts. (A similar ranking also exists in the Central Bureau of Statistics' definition of area—see Model 2.) They prefer to purchase homes in large Jewish communities.

With regard to the socioeconomic background of the neighborhood in which the home is located, we found that investors' preference is similar to that of other purchasers. It is worth noting that among other purchasers, the picture is different (in the large cities): Those purchasing a first home naturally tend to purchase homes in relatively low-ranked

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[14] Bank of Israel calculations on data series from the Central Bureau of Statistics: Average owner-occupied home prices (or free rents), by residential area and home size.

[15] As opposed to an assessment of the factors influencing the chance that a person owning a single home will purchase an additional home, thereby becoming an investor.

neighborhoods, since these homes are less expensive. Those upgrading their residence purchase as expected in relatively well-established neighborhoods, and foreign residents purchase for the most part in neighborhoods with intermediate socioeconomic rankings, but it is possible that this reflects the purchase of expensive homes in the city centers (for instance in Tel Aviv-Jaffa) that are usually of intermediate rank.

Given the characteristics of the home and the environment, investors purchase homes at prices similar to those paid by other players in the market, a finding which may show a competitive market (see Models 3–5). The more the surplus yield from renting out an home—meaning the spread between the yield on renting out a home (by area and home size) and the yield on an alternative investment track such as the interest on CPI-indexed deposits for ten years or more—increases, the more the likelihood that an investor (rather than another purchaser) has purchased a given apartment will increase. Every increase of one percentage point in the surplus yield increases the likelihood by 22 percent.

Finally, we assess how the interest rate expectations for one year forward (derived from the Telbor rate) influence the likelihood that an investor (rather than another purchaser) has purchased a give home (Model 5). It turns out that every 1 percentage point increase in the interest rate reduced the likelihood ratio by about 8 percent, assuming all else remains the same (including the yield from renting out a home). It seems that investors respond more strongly than others to changes in the expected interest rate since they are more motivated by economic considerations, first and foremost by the desire to achieve the maximum yield on their asset portfolios. During the period following the adoption of the measures, the effect of the interest rate was reduced by one-third.

The estimate of the dummy variable for 2011 and 2012 shows that the likelihood that investors—rather than others—have purchased a home was an average of about 86 percent of the likelihood in 2003–10. This is in line with Figure 2.

Increasing the purchase tax burden on investors was differential, as stated, based on the value of the home. It was therefore more significant among those purchasing homes valued at more than NIS 3 million. (These homes constituted less than 4 percent of total homes purchased by investors prior to the change in legislation.) It is therefore reasonable to estimate that in purchases of such homes, the relative decline was larger. However, estimations that tested this

hypothesis[16] did not support it. It is possible that in the case of these apartments, the price elasticity of demand is lower because for the most part, these are unique homes, and the considerations toward purchasing them are not necessarily economic. (Most are apparently also not rented out.)

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[16] Multinominal and order logit estimates were made of the likelihood that a home purchased by an investor would belong to one of the price groups setting the tax brackets, given the home characteristics that appear in Table 1 (Model 4).

Table 1: Ratio of probabilities that a home was purchased by an investor, 2003-2012

The Explanatory Variable		Model 1 (entire country)	Model 2 (CBS communities[a])	Model 3 (CBS communities[a,b])	Model 4 (CBS communities[a,b])	Model 5 (CBS communities[a,b])
Home size (compared to a 3.5-4 room home)	0.5-1.0	***2.62	***2.76			
	1.5-2.0	***2.59	***2.60	***1.97	***2.00	***2.17
	2.5-3.0	***1.49	***1.50	***1.30	***1.32	***1.38
	4.5-5.0	***1.07	***1.08	***1.05	***1.05	***1.06
	More than 5	***1.29	***1.30			
Age of home (years)		***1.00	***1.00	***1.00	***1.00	***1.00
District (compared to Tel Aviv)	Jerusalem	***0.63				
	North	***0.97				
	Haifa	***1.03				
	Central	***0.76				
	South	***0.91				
	Judea and Samaria	0.48				
CBS area (compared to Tel Aviv)	Jerusalem		***0.55	***0.55	***0.53	***0.53
	North		***0.78	***0.54	***0.52	***0.60
	Krayot		***0.78	***0.59	***0.78	***0.87
	Haifa		***0.94	***0.79	***0.79	***0.84
	Sharon		***0.73	***0.65	***0.77	***0.83
	Central		***0.57	***0.48	***0.79	***0.88
	Gush Dan		***0.70	***0.63	***0.82	***0.85
	South		***0.74	***0.59	***0.72	***0.72
Arab community		***0.62	***0.47	***0.46		
Large community[c]		***1.09	***1.02	*1.02		
Socioeconomic rating of the statistical area[d]		***1.01	***1.01	***1.01	***0.99	***1.00
Home price (NIS thousand)				***1.00	***1.00	***1.00
Surplus yield from home rental (percentage points)[e]				***1.24	***1.22	
Yield from home rental (percentage points)						***1.17
Interest rate expectations[f] (percentage points)						***0.92
Month and year		V	V	V	V	
Dummy for January 2011 onward[g]						***0.86
Fixed effects for the community					V	V
Number of observations		769,702	699,350	616,768	616,768	616,768
Pseudo R^2		0.03	0.03	0.04	0.05	0.04

SOURCE: Israel Tax Authority, Central Bureau of Statistics, and Bank of Israel calculations.

Significantly different than 1: *, **, *** - Statistical significance at 10, 5, 1 percent level.

a)   The communities included in calculating the Index of Home Prices prepared by the Central Bureau of Statistics.

b)   1.5 to 5 rooms.

c)   A community in which there are more than 100,000 residents in 2011.

d)   Ranking on a scale of 1 to 20 (the highest socioeconomic level), according to the population and housing census of 2008.

e)   The gap between the yield on renting out a home (by district and area) and the interest on CPI-linked deposits of 10 years or longer.

f)   One-year forward interest rate expectations as derived from the Telbor rate.

g)   The period during which policy measures were adopted in the area of taxation and credit, in order to reduce demand for investment homes. The estimate includes two additional dummy variables: April 2003 (odd ratio=0.48, statistical significance at 1 percent level) for the Second Gulf War; December 2010 (odd ratio=1.45, at 1 percent level) for investors bringing purchases forward due to the increase in purchase taxes imposed on them.

Payment of the Earned Income Tax Credit[1] in 2012: The first year of nationwide expansion

- During the first year of nationwide applicability of the allowance, approximately 181,000 individuals received the allowance, and approximately 370,000 individuals were eligible.
- The law is well-focused on weaker population groups: About 75 percent of total payments were transferred to salaried employees from the two lowest income quintiles among salaried employees.
- About half of those eligible for the allowance utilized their eligibility and received the allowance. The average yearly amount per recipient was about NIS 2,900.
- The EITC is an effective tool in support of working families, and increasing it by about 45 percent per family will reduce poverty among this population group by about 0.3 percentage points at a lower cost than alternative tools.

The Earned Income Tax Credit (EITC) has been paid each year since 2008. It is intended to improve the economic wellbeing of working families with relatively low incomes. The allowance is paid mainly to workers with children under the age of 18, and to older workers (aged 55 and over) without children of relevant ages. The amount paid depends on the salary level of the worker, and is higher among eligible persons with three or more children. Beginning in 2013, the size of the allowance for mothers was increased by 50 percent, as a result of the recommendations of the Committee for Economic and Social Change (the Trajtenberg Committee). Beginning in November 2013, access to the program's data was improved, and each citizen can checked his eligibility on the Israel Tax Authority's website by entering identifying information such as a person's ID number.[2] Those eligible for the allowance can apply for it through a simple process that includes submitting a request through branches of the post office. The allowance is paid on a quarterly basis in the year following the eligibility year, which is the work year for which the allowance is paid. During the first two years of the law's implementation (2008 and 2009), the allowance was paid in selected regions ("treatment areas"[3]), and in

2010 and 2011, eligibility was expanded to include mothers of children up to age 2 outside of these areas. Beginning in 2012, the allowance is paid throughout the country.[4]

This article reviews the results of the first year of the law's nationwide expansion, while describing the eligible population groups, the take-up patterns, and the allowance's effects on the economic wellbeing of workers.

1. Eligible persons

Eligibility for the Earned Income Tax Credit is determined by the Israel Tax Authority based on its records. In the first years of the implementation of the law, the number of those eligible was about 64,000, and in the first year of nationwide applicability of the law, the number of those eligible totaled about 370,000. The vast majority of those eligible are salaried employees (98 percent), with the remainder being self-employed.[5] In the 2011 eligibility year, roughly 10 percent of salaried employees were eligible for the allowance. Table 1 shows a comparison between those eligible and other salaried employees based on various characteristics. It shows that those eligible for the allowance are older, earn less, and most are parents of children under age 18.

The breakdown of those eligible by population groups shows that the law has succeeded in focusing on the weaker population groups: Immigrants comprise about 25 percent of those eligible, compared to 17 percent among other salaried employees, Arabs constitute about 20 percent of those eligible, compared with 11 percent among other salaried employees, and the ultra-Orthodox proportion of those eligible is roughly twice as high as their proportion of the ineligible salaried population. More than half of those eligible are women, and about 12 percent of those women are single mothers, compared to 5 percent among the other salaried employees who are single mothers of children up to age 18.

The vast majority of those eligible have been in the labor market for a prolonged period, working about 10 months in the year, and earning a salary that ranges around the minimum wage (Table 2).

Most of those eligible (80 percent) are parents, and about one-third of them have three or more children. About 20 percent of those eligible are older workers aged 55 and over without children in the relevant age range. During the

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[1] The allowance known as the "negative income tax", "income allowance" or "work allowance", paid under the Increasing the Labor Force Participation Rate and Reducing Social Gaps Law, 5768–2007.

[2] https://www.misim.gov.il/maanakavoda/BdikatZakaut.aspx (Hebrew)

[3] The communities that are part of the treatment areas: Jerusalem, Sderot, Ashkelon, Nazareth, Upper Nazareth, Ein Mahal, Baka-Jat, Mishmarot, Ein Iron, Arara, Kfar Pines, Kafr Kara, Or Akiva, Hadera, Pardes Hana-Karkur, the Basma Local Authority (Muawiya, Barta'a, and Ein a-Sala), and Netanya.

[4] More information on the gradual application of the law appears in: Bank of Israel, Recent Economic Developments, Volume 130, "Three Years Since the Introduction of the Earned Income Tax Credit" http://www.boi.org.i l/develeng/develeng130/develeng.pdf.

[5] From here on, the analysis relates to salaried employees only.

Table 1: Comparison between eligible persons and other salaried employees based on various characteristics

Characteristics	Eligible persons	Ineligible salaried employees
Average age	42	37
Average monthly salary (NIS)	4,249	8,984
Number of working months	10.1	9.9
Women, %	57	48
Immigrants, %	25	17
Arabs, %	19	11
Ultra-Orthodox Jews %	7	3
Parents of children up to age 18, %	80	42
Average number of children up to age 18	2.44	2.32
Total	369,839	3,157,588

Table 2: Employment history of those eligible in 2011 during the last five years (2007–2011)

Year	Share of eligible persons in 2011 who worked	Average monthly salary (NIS)	Months of work, yearly average
2007	82	3,880	9.8
2008	85	4,055	9.9
2009	86	4,052	9.8
2010	92	4,123	10.1
2011	100	4,249	10.1

Table 3: Distribution of those eligible over the eligibility trapezoid in the 2011 eligibility year

Trapezoid segment	Salary range (NIS)	All those eligible, percent	Women, percent	Men, percent
Phase-in	2,040-3,539	30	35	23
Plateau	3,540-4,730	34	34	34
Phase-out	4,731-6,035/6,645*	36	31	43

* According to type of eligibility.

reviewed year, most of the workers were eligible for an allowance for the first time (76 percent), about 7 percent were eligible at least three times in previous years (eligible people living in the treatment areas), and about 17 percent were eligible at least twice in previous years. An analysis of the history of eligibility in the areas in which the law is being implemented for the fifth year (the treatment areas) shows that this is a stable group, most of whose individuals have already been eligible for the allowance at least once in previous years (about 72 percent).

The allowance amount depends on the individual's salary level, and is constructed in the form of a trapezoid: It increases at the lower salary levels, reaches its maximum around the minimum wage, and declines gradually in the relatively high income ranges, up to about two-thirds of the average salary (Table 3). The distribution of those eligible is quite uniform over the trapezoid, and about one-third of those eligible earn a salary close to the minimum wage, and are therefore eligible for the highest allowance level. A breakdown by gender shows that women eligible for the allowance are more or less uniformly distributed along the trapezoid. In contrast, only about one-quarter of men who are eligible earn relatively low wages and are in the phase-in segment of the trapezoid, while most of them earn a relatively high salary and are in the phase-out segment of the trapezoid.
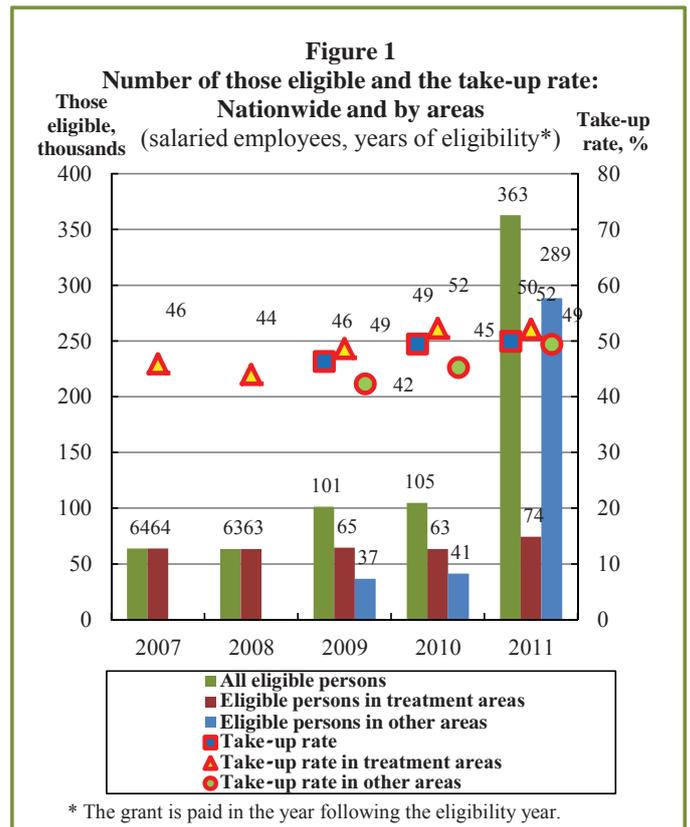
The current allowance amounts are significantly lower than similar programs around the world: The maximum allowance amount in Israel is about 12 percent of the average wage of an eligible male, and 17 percent of the average wage of an eligible female, compared with 40 percent of the average wage of eligible persons in the US. This is also reflected in the low expenditure on the program in Israel: about 0.07 percent of GDP in 2013, compared with 0.4 percent of GDP in the US (in 2009) and 0.5 percent of GDP in the UK (in 2009–10).

2. Utilization of eligibility

The allowance is not paid automatically. In order to receive it, the eligible person must submit a request to the Israel Tax Authority. This action is required both in order to complete the information the Israel Tax Authority has on the individual's place of work during the tax year, and in order to receive the bank account details of the eligible person, to which the allowance is then transferred. The take-up rate among eligible persons has increased over the years. In the first year of the law's implementation, about 46 percent of those eligible—about 29,000 people— received the allowance. One of the factors in this was a widespread public information campaign carried out by the "Yedid" organization in conjunction with the Israel Tax Authority.

Since in that year the take-up rate was relatively high, this indicates the importance of public information campaigns during the first years of implementation of new programs.

In 2011, the allowance was paid to about 50 percent of eligible persons—about 181,000 people. This rate is similar to the take-up rates for a similar federal program in the US in the first years of its operation.[6] In the original areas of the law's applicability, the take-up rate was even higher (52 percent—see Figure 1).

Figure 1
Number of those eligible and the take-up rate: Nationwide and by areas
(salaried employees, years of eligibility*)

* The grant is paid in the year following the eligibility year.

Those eligible who have already received the allowance in the past tend more to utilize their eligibility again, as shown by the data on treatment areas: Among individuals who were eligible in the reviewed year who received the allowance at least once prior to 2012, the take-up rate was significantly higher than the average—about 63 percent (Table 4). Among individuals who received the allowance in all of the first four years of the law's implementation (the allowance paid in 2008 through 2011), and who were eligible for the allowance in the reviewed year, the vast majority took up their eligibility this year as well. In contrast, among newly

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6   More information on use in the United States appears in: Bank of Israel, Recent Economic Developments, number 123, "Interim review since Israel's Earned Income Tax Credit program was activated in September".

eligible persons in the treatment areas, just 29 percent utilized their eligibility in the reviewed year. About 5,200 individuals from the treatment areas received the allowance in all five years in which the law was implemented (2008–12).

Table 4: Eligible persons and those receiving the allowance in the treatments areas, by years of eligibility

Number of prior years in which they received the allowance	Those eligible for the 2011 eligibility year		Take-up rate, percent
	Did not take up their eligibility	Took up their eligibility	
0	30,377	12,651	29
1	4,502	7,764	63
2	1,669	6,978	81
3	948	5,305	85
4	409	5,206	93
Total	37,905	37,904	50

There is variance among the take-up patterns among different population groups. The take-up rate is higher among women, among single mothers, and particularly among the ultra-Orthodox Jews. Arabs from eastern Jerusalem are characterized by the lowest take-up rate, with the rate increasing over the years, but declining last year (Figure 2a). This year, the take-up rates among both Arabs and the ultra-Orthodox declined. Outside the treatment areas, the take-up rate among all population groups increased in the reviewed year, to about 60 percent—the comparison relates only to mothers of children aged 1–5, since only this population group was eligible in the subject areas in previous years (2009–10; Figure 2b) as well. This group underwent a significant learning process in the two previous years: Just one-quarter of those eligible applied to receive the allowance due to eligibility in 2009, and about one-third applied due to eligibility in 2010. (The data do not include ultra-Orthodox women.) During the reviewed year, their take-up rate came close to that of the same group in the original areas (63 percent). Ultra-Orthodox mothers increased their take-up of the allowance during this period from 75 percent to 81 percent. The nationwide take-up rate of mothers of children aged 1–5 was markedly higher than that of other eligible persons, and totaled about 60.4 percent. The take-up rate of the other eligible persons in the "new" areas was about 47 percent.

**Figure 2
Take-up rate by population groups and geographic areas, 2007–11**

A. Take-up rate in the treatment areas

B. Take-up rate in the other areas[a]
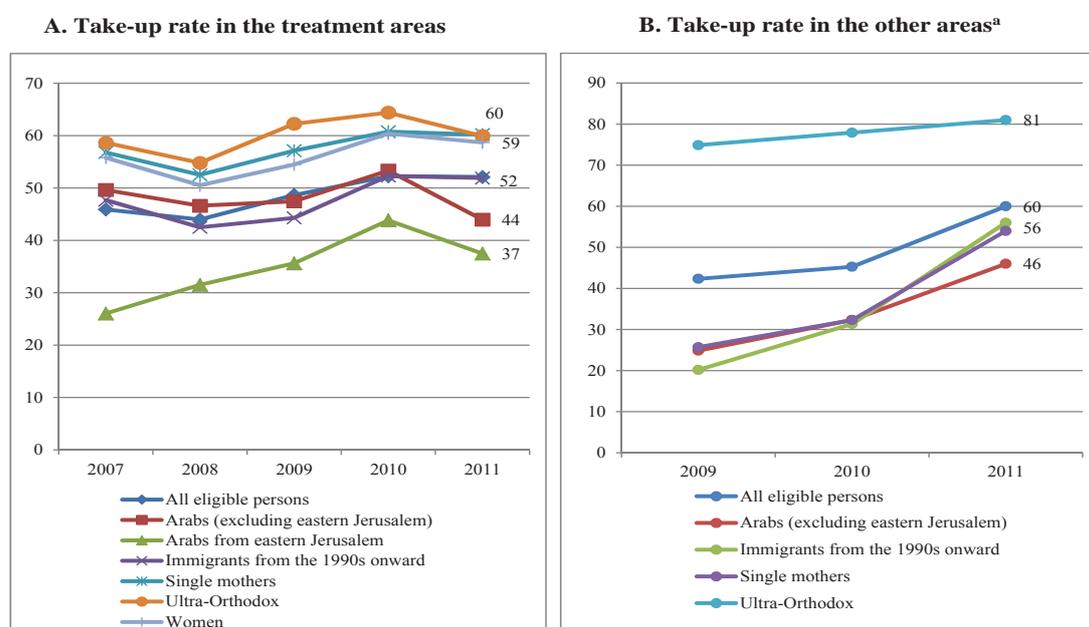
a) 2011 data are for mothers of children aged 1–5, a population group that was eligible in 2009–10.

Table 5: Percentage of those taking up eligibility who submitted a claim only after notice of their eligibility was sent

	Nationwide	Treatment areas	Other areas
Arabs (excluding eastern Jerusalem)	60	43	64
Immigrants from the 1990s onwards	55	43	59
General population	54	42	57
Single mothers	53	40	56
Women	51	39	53
Ultra-Orthodox	45	44	46
Arabs from eastern Jerusalem	38	38	-

We used a regression to estimate the factors affecting the likelihood of eligible people applying for the allowance. We found that women—particularly single mothers—tend to take up their eligibility more. The probability of utilizing eligibility among the ultra-Orthodox is significantly higher than among non-ultra-Orthodox veteran Israelis (born in Israel or who immigrated before the 1990s). In contrast, more recent immigrants, and even more so Arabs, tend to utilize their eligibilities less. Among the factors increasing the probability of taking up eligibility are: having received the allowance in previous years, living in a treatment area, the amount of the allowance, employment in the public sector, and whether a spouse receives the allowance.

One of the reasons for not taking up eligibility is a low level of awareness of the new law. In order to increase the take-up rate among those eligible, the tax authorities send them notices. They do so toward the final date for submitting claims, and only to those eligible who have not yet applied to the Tax Authority in order to receive the allowance. During the reviewed year, more than half of those taking up their eligibility submitted a claim only after receiving the notice of their eligibility. In the areas where the applicability of the law is "new", about 57 percent of those receiving the allowance appealed to the tax authorities only after letters were sent, compared with 42 percent in the treatment areas (Table 5). The higher rate in the "new" areas indicates that most of those utilizing their eligibility did not know about the law, or alternatively, knew only partially about their eligibility, and the notice was a main source of information for them. In these areas, we can identify population groups—such as the ultra-Orthodox and women—who apparently received the information properly through other channels. This is because the share of those who are eligible who submitted claims before the letters were sent was higher than average. These population groups are also characterized by a high take-up rate. In contrast, among Arabs and immigrants, most of those receiving the allowance in the "new" areas submitted

a claim only after receiving the notice. The notices were not helpful among those receiving the allowance from eastern Jerusalem—only about one-third of them submitted a claim after the notice was sent—against the background of very low take-up rates over the years.

The letters, which contain information on personal eligibility, contributed greatly to the increase in the take-up rate of the eligibility. In 2012, the text of the letters was made simpler, making the letters more user-friendly. These changes assisted in increasing the efficiency of this tool, and are reflected in an increase in the take-up rates. In order to expand the scope of providing personal information in regard to eligibility for the allowance, the Israel Tax Authority established a website in November, 2013 that enables individuals to examine their eligibility immediately, by listing identifying details. The immediacy and simplicity of this process should increase the number of applicants for the allowance. The Tax Authority is currently launching a broad public information campaign containing information about the allowance and a reference to the website.

3. The amount of the allowance and its effect on the economic wellbeing of workers

In the 2011 eligibility year, the average amount of the yearly eligibility was about NIS 2,700. Since the amount of the allowance affects the chances that it will be taken up, the average allowance actually paid was slightly higher, at about NIS 2,900 (Figure 3). The eligibility amounts increased slightly over the years, other than for the 2010 eligibility year, since in that year, the law operated in only the treatment areas for the first four months due to statutory changes. The average allowance is expected to increase by about 25 percent starting with the payment for 2013, since the allowance for mothers was increased in line with the Trajtenberg Committee's recommendations.

Figure 3
Eligibility amounts and the allowance paid, current prices

Figure 4
Allowance amounts paid in 2012, by population group
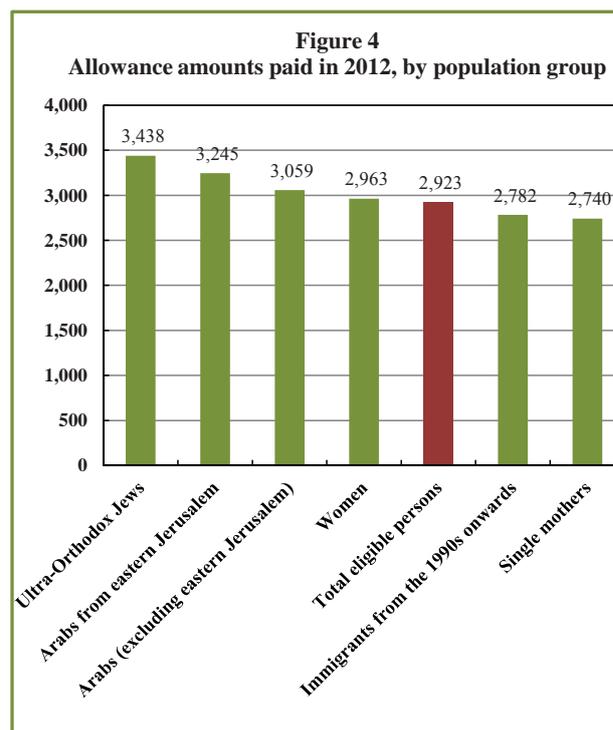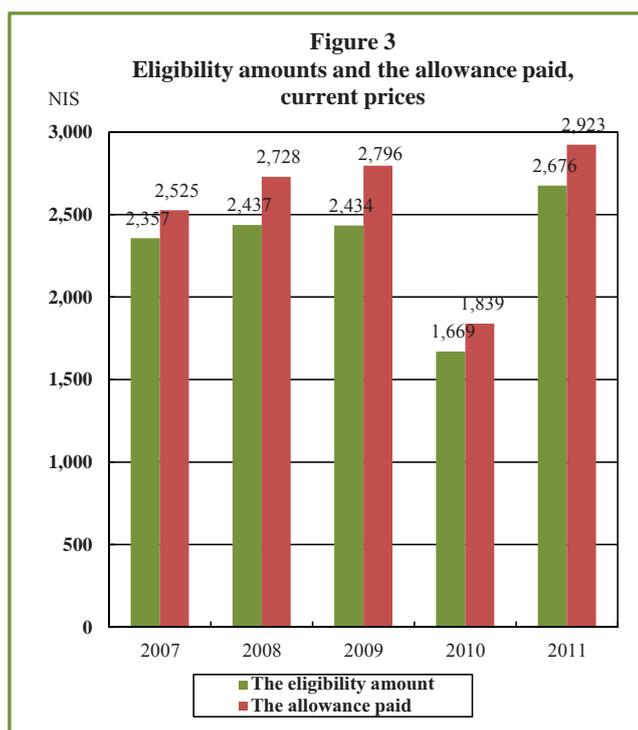
Table 6: The average yearly allowance paid in 2012, by eligibility

Eligibility Group	Average allowance amount paid, NIS	Proportion of recipients
Aged 55 and over, with no children of eligibility age	2,600	18
Eligible persons with one or two children	2,496	47
Eligible persons with three or more children	3,665	35
Total	2,923	100

In 2012, eligible persons with three or more children received a higher allowance, in accordance with the definitions of eligibility. The average allowance paid to this group was roughly 25 percent higher than the average allowance, and totaled about NIS 3,700 (Table 6).

This also explains the differences between groups in the amount of the allowance paid (Figure 4). Population groups characterized by a high number of children receive a larger allowance. Most of those receiving the allowance among Arabs and ultra-Orthodox Jews have at least three children.

Therefore, they are eligible for a higher average allowance (Table 7).[7]

In 2012, EITC was paid to about 5 percent of all salaried employees. Most of the amounts were paid to workers from weaker population groups: immigrants (24 percent of total payments), Arabs (16 percent), ultra-Orthodox

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[7] A review of allowance amounts in the 2007–10 eligibility years by population groups appears in: Bank of Israel, Recent Economic Developments, 134, "Preliminary results of the first four years of implementation of the Earned Income Tax Credit Law" http://www.boi.org.il/en/NewsAndPublications/RegularPublications/Research%20Department%20Publications/RecentEconomicDevelopments/develop134e.pdf

Table 7: Allowance recipients by types of eligibility and population groups

Population groups	Aged 55+, percent	With one or two children, percent	With three or more children, percent	Total, percent
Total allowance recipients	18	47	35	100
Ultra-Orthodox Jews	6	33	61	100
Arabs (excluding eastern Jerusalem)	4	42	55	100
Immigrants from the 1990s onwards	32	49	20	100
Arabs from eastern Jerusalem	5	37	58	100
Single mothers	-	83	17	100
Women	18	50	32	100

Table 8: EITC recipients according to quintiles of labor income from salaried work, 2011

Quintiles of labor income	Average monthly income (per standard individual), 2011 prices, NIS	Average allowance paid (per standard individual in the recipient's family), NIS	Monthly allowance as a percentage of labor income (per standard individual, percent)	Distribution of recipients by quintiles, percent	Distribution of total allowance payments by quintiles, percent
1	850	104	12	31	31
2	2,164	134	6	40	44
3	3,547	136	4	23	21
4	5,325	113	2	6	4
5	10,328	121	1	0	0
Total	4,016	124	3	100	100

Jews (9 percent), and single mothers (11 percent). Most of those receiving the allowance (about 71 percent) are in the two lowest income quintiles in the distribution of salaried employees by equivalized family wage income (Table 8), and they received 75 percent of total payments paid out in the framework of the law. The allowance constituted a more significant addition for salaried employees with low income who are in the lowest income quintiles (equivalized family income of the allowance recipient). It increased equivalized income by about 12 percent in the families of eligible persons in the lowest quintile, and by about 6 percent in the second-to-lowest quintile.

4. The possibility of increasing the allowance for eligible persons with children

The EITC is achieving its goals because it focuses well on workers who have children and a relatively low income. It is therefore an efficient tool for supporting this population group, with a reduced budget and without harming work incentives. Increasing the allowance amount will enable a reduction in poverty, to a great extent and with relatively low cost, among the families of workers with children, because the decisive majority of support reaches the target population.

We can see the effectiveness of the program, for instance, by assessing how the cut in child allowance benefits in the 2013–14 budget—a cut that serves as a main step in reducing

the government deficit—affected poverty, and how we can moderate its effect with the allowance. This measure saved about NIS 3 billion per year in government expenditure, but increased poverty rates among families with breadwinners by about 0.4 percentage points, expanded the poverty gap by 0.5 percentage points, and increased the number of working poor families by about 7,100. Taking into account the reduction, if the average allowance per family is increased by about 45 percent, alongside an expansion of about one-third in the number of eligible families by expanding the eligible income range, it would reduce poverty among working families by about 0.28 percentage points, and reduce the poverty gap by about 0.5 percentage points. The increased allowance would raise about 4,700 families with breadwinners out of poverty. Increasing the allowance would raise expenditure on the program by about 90 percent, totaling about NIS 650 million. In other words, increasing the allowance would enable offsetting most of the harm to working families. It would cancel about two-thirds of the increase in poverty among families with breadwinners, at a cost of about one-fifth of the savings obtained from the cuts in benefits. This alternative shows the potential benefits of the EITC in coping with workers' poverty. The outline presented above is just one example of how this tool can be used to make it easier for families with low incomes during periods of fiscal consolidation.

Table 9: Increasing the allowance and its effect on poverty among households with wage-earners

Population groups	Effect of the proposal on the incidence of poverty (percentage points)	Working families
Total households with wage-earners	-0.28	-4,700
One wage-earner	-0.3	-2,200
Two or more wage-earners	-0.26	-2,500

The change in the allowance is grounded upon four basic principles detailed below:

a. Identical amounts will be granted to men and women: The EITC allowance is not gender balanced, contrary to similar programs in other countries. The imbalance was created in 2012, after the Trajtenberg Committee recommended increasing the allowances to mothers by 50 percent.

Increasing the allowance by returning the gender balance will increase the effectiveness of the allowance as a tool for reducing poverty, since men constitute about 70 percent of eligible persons in poor eligible families.

b. Three trapezoids will be defined: There are currently two trapezoids: one for eligible persons with 1 or 2 children, and the second for eligible persons with three or more children. We propose creating three trapezoids: 1 for eligible persons with one child, or those over age 55 with no children of eligibility age, a second for eligible persons with two children, and a third for eligible persons with three children or more.

The reason for this proposal is that there is tremendous variance in poverty, in accordance with the number of children in the eligible person's family. About one-third of eligible families with two children are poor, compared to one-quarter of families with one child. In order to increase the law's effectiveness in reducing poverty within the limitations of the budget it is advisable to divide the two existing trapezoids into three.

Figure 5
The EITC: The proposal to increase it compared to the current situation

Monthly allowance amount, NIS

Monthly wage, NIS

Proposal: 1 child
Proposal: 2 children
Proposal: 3 children
The existing situation: woman with 1-2 children
The existing situation: woman with 3 children
The existing situation: man with 1-2 children
The existing situation: man with 3 children

The existing graduality (23.5 percent) in reducing the amount of the allowance to eligible persons with a relatively high salary who are on the phase-out segment of the trapezoid will be maintained, so that the marginal tax rate in the salary range will not increase.

The entitling wage ceiling will be increased in each trapezoid in order to maintain a moderate slope in the phase-out segment of the trapezoids. It is important to emphasize that the maximum entitling wage does not exceed the national average salary. In addition, the eligibility amount is reduced or cancelled in families with relatively high incomes, since the model takes into account the income of the eligible person's spouse.

Table 10 and Figure 5 present the proposal in detailed form, comparing it to the law as currently valid.

Table 10: The allowance per working month: The proposal to increase it compared to the current situation

Woman/Man with one child, eligible person over age 55	Proposed	Current situation Women	Men
Basic allowance amount, NIS	120	120	80
The slope in the phase-in segment of the trapezoid, percent	10.7	24.2	16.1
The maximum amount in the plateau of the trapezoid, NIS	280	480	320
The slope in the phase-out segment of the trapezoid, percent	12.4	34.5	23
The maximum wage, NIS	6,750	6,034	6,034
The minimum allowance amount, NIS	30	30	20

Woman/Man with two children	Proposed	Current situation Women	Men
Basic allowance amount, NIS	180	120	80
The slope in the phase-in segment of the trapezoid, percent	28	24.2	16.1
The maximum amount in the plateau of the trapezoid, NIS	600	480	320
The slope in the phase-out segment of the trapezoid, percent	18.9	34.5	23
The maximum wage, NIS	7,745	6,034	6,034
The minimum allowance amount, NIS	30	30	20

Woman/Man with three or more children	Proposed	Current situation Women	Men
Basic allowance amount, NIS	180	180	120
The slope in the phase-in segment of the trapezoid, percent	61.3	35.3	12.5
The maximum amount in the plateau of the trapezoid, NIS	1100	705	470
The slope in the phase-out segment of the trapezoid, percent	23.5	35.25	23.5
The maximum wage, NIS	9,285	6,645	6,645
The minimum allowance amount, NIS	30	30	20

Employee unionization in Israel: The situation in 2012

- In 2012, about one-quarter of employees in Israel were members of a union, and about one-third were covered by a collective agreement. Although this unionization rate indicates that unions' power continued to decline over the past two decades, it remains higher than the rate in most OECD countries, where it also declined.
- The coverage rate is high in business industries which are concentrated (electricity and water, and the finance industry), and in public services industries that generally have direct employment. The salary in covered business industries is higher than the salary in business industries with a low coverage rate. A similar phenomenon can be seen in public services industries.
- The coverage rate of workers with an academic degree in public services industries is greater than the coverage rate of workers without higher education in those industries. It is also higher than the coverage rate of workers with academic degrees as well as those without a higher education in business industries.
- The estimated return to schooling among covered employees in public services industries is double the parallel figure among uncovered workers, and is also double the return to schooling among workers in business industries.

In the past 3 years—and after about 3 decades of labor organizations weakening—workers have unionized in companies and industries in which labor had not been organized. Employees unionized at companies in fields including mobile communications, insurance, credit cards, energy ("Paz"), and even fast food chains ("Burger Ranch" and "McDonalds"). Some of the workplaces attempted, actively, to prevent their workers from unionizing.

The wave of unionization of recent years derives from several factors. First, court decisions and legislation from 2009 reduced, from one-half to one-third, the share of unionized workers that an employer is required to negotiate with. Additionally, in 2013, the National Labor Court found, in a precedent-setting ruling, that an employer may not express opposition to, or interfere with, the initial unionization of the workers. This ruling makes it even easier to unionize in additional workplaces.[1] Finally, it can be assessed that the wave of unionization was powered to a degree by the lack of

occupational security in the economy in general as a result of the global crisis. In parallel with these developments, there were processes of revival in the labor union field—in 2010, the Histadrut (General Federation of Labor) set up a division for organizing workers in new workplaces, and in 2007, the Koach La'ovdim organization (Democratic Workers Organization) was established, and at times the organizations have even competed between themselves over the representation of employees in workplaces.

This analysis presents a review of the scale and characteristics of employees who reported on the Social Survey (2012) that they are members in a labor union or that they are covered by a collective agreement. Presumably such subjective reporting rates are lower than the rates of membership and coverage as defined in law, since some of the employees are unaware that they are covered by a collective agreement, in particular when considering an industry-wide agreement. Thus, this analysis includes, in the "covered" group, workers who reported that they are employed within the framework of a collective agreement or that their workplace has a workers committee, similar to the method used by Haberfeld, et al. (2010).[2] To the best of our knowledge, the Social Survey (2012) presents the first official database[3] which deals with labor unions in Israel. We used this database to compare the characteristics and effects of unionization in Israel from an international and historical perspective, and to compare various industries and employees in the economy.

According to estimates of the Central Bureau of Statistics (CBS), the share of unionized employees in the economy (unionization rate, or trade union density) was about 24 percent in 2012. In the absence of CBS data from the past, we compare this share to estimates from other sources, though it should be noted that those sources only indicate general trends, not precise changes that occurred in the unionization rate over the years. Haberfeld, et al. (2010) used data on insured members of Clalit Heath Fund.[4] Based on that data, the unionization rate declined from a record of around 80 percent in the beginning of the 1980s to around 65 percent in 1992. Estimates based on telephone surveys conducted by the Ministry of Industry, Trade, and Labor (today named the Ministry of Economy) indicated that in the years following, the unionization rate continued to decline following the National Health Insurance Law (1994), which

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[1] The National Labor Court ruling in "the New Histadrut vs. Pelephone" (17452-90-21) was reached on January 2, 2013.

[2] This definition also includes uncovered workers, since unionized workplaces also employ workers via personal contracts. For example, in the civil service there are 8,500 workers on personal contracts, and they make up about 12 percent of total workers in the civil service (Koch Davidovich, March 2013).

[3] That is, a database compiled by the Central Bureau of Statistics.

[4] Until 1995 Clalit Health Fund provided services to members of the main national trade union (Histadrut).

Figure 1
Unionization rate in OECD countries, 1992 and 2010–12

SOURCE: OECD, Central Bureau of Statistics, Cohen, et al. (2007).
Note: Updated unionization rate denoted by: ‡2010, †2011,*2012. Unionization rate = "union density".
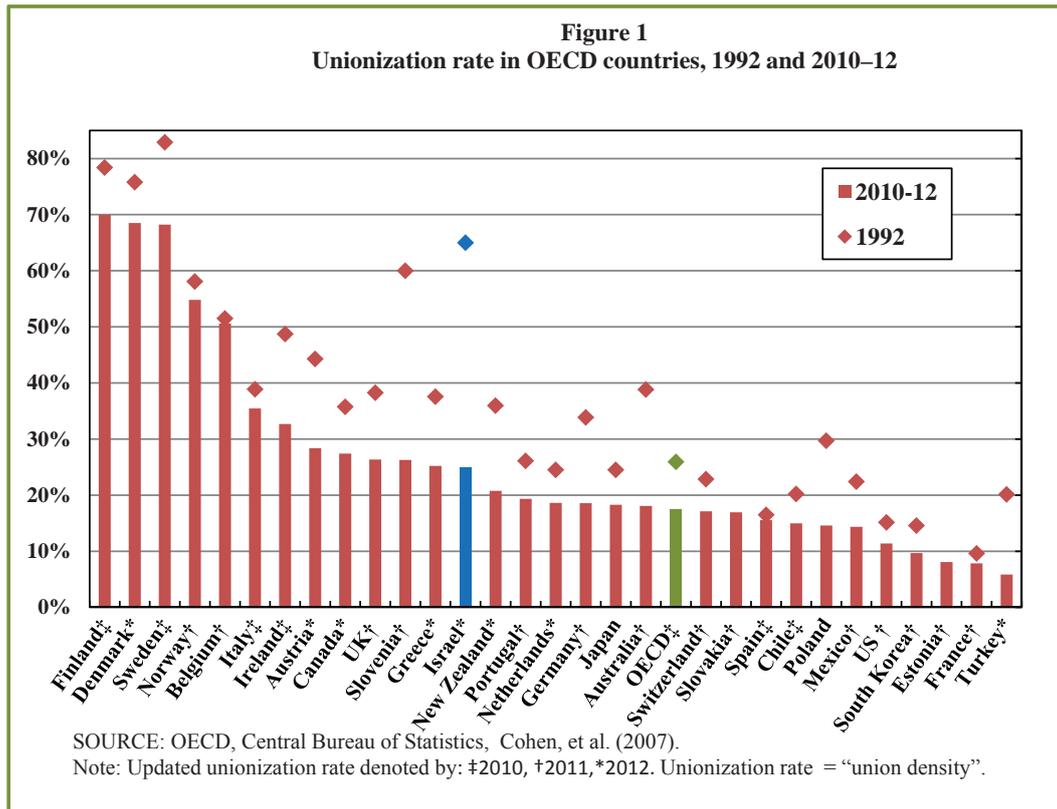
broke the link between the services provided by Clalit Health Fund and membership in the Histadrut—the unionization rate reached about 45 percent in 2000, around 34 percent in 2006, and according to CBS estimates, to around 24 percent of employed persons in 2012. Indeed, data from various sources indicate that in the past quarter century, the unionization rate in Israel dropped sharply.

The decline in unionization rate is not unique to Israel, and in the past two decades it has been seen in OECD countries for which data is available (Figure 1). Nonetheless, the decline in Israel was especially sharp—in 1992, Israel was among the countries with a high unionization rate (Scandinavian countries, Belgium), and in 2012 it was among the countries characterized by a medium-high unionization rate (Austria, Canada, the UK, and New Zealand). It is important to note that like the historical comparison of unionization rates in Israel, the international comparison is also not precise, as it lacks a modern international standard[5], and thus indicates only general trends.

1. Collective agreements in industries: the coverage rate and salaries

This section analyzes the coverage rates by industry, with a distinction between public services industries and business industries, since those groups are different from each other, both in terms of financing their activities and in terms of composition of employers. In general, the public services industries—public administration, education, health, and social work, and the social services industries—receive most of their funding from public budgets, and a significant share of the workers in those industries are employed directly by the national government, local authorities, or corporations that the Supervisor of Wages at the Ministry of Finance oversees. In contrast, in business industries, employers are typically profit-driven companies that sell their products and services to private and public customers, in competitive environments and/or under supervision by industry regulators; the Supervisor of Wages at the Ministry of Finance oversees only a few of them (such as Israel Electric Corporation and water corporation employees in the Electricity and Water industry, ports and train workers in the Transport industry, and Raphael and Israel Aerospace Industries employees in the Manufacturing industry).

When examining the coverage rate in public services industries (Figure 2), it is found that it is high (78 percent) in the public administration industry, in which direct

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[5] Standards for measuring labor union activity were set in 1926. Details on international comparisons of unionization rates appear in Hayter and Stoevska (2011).
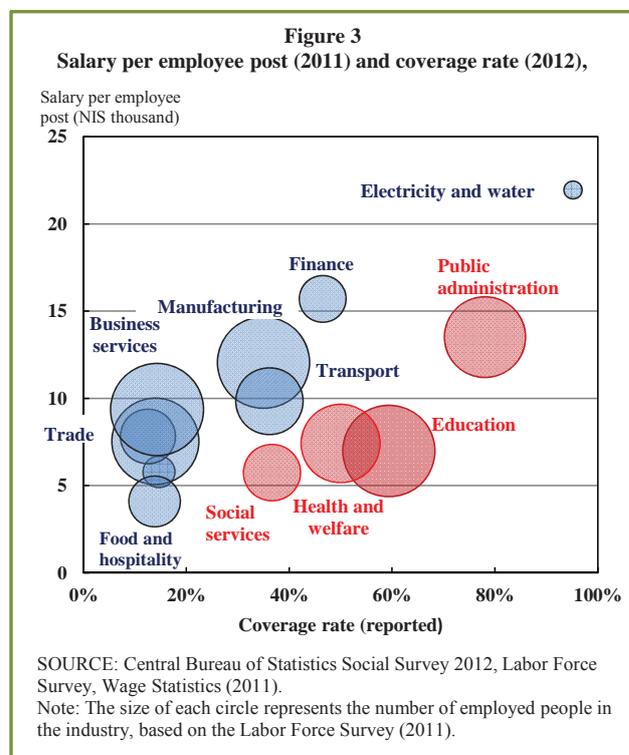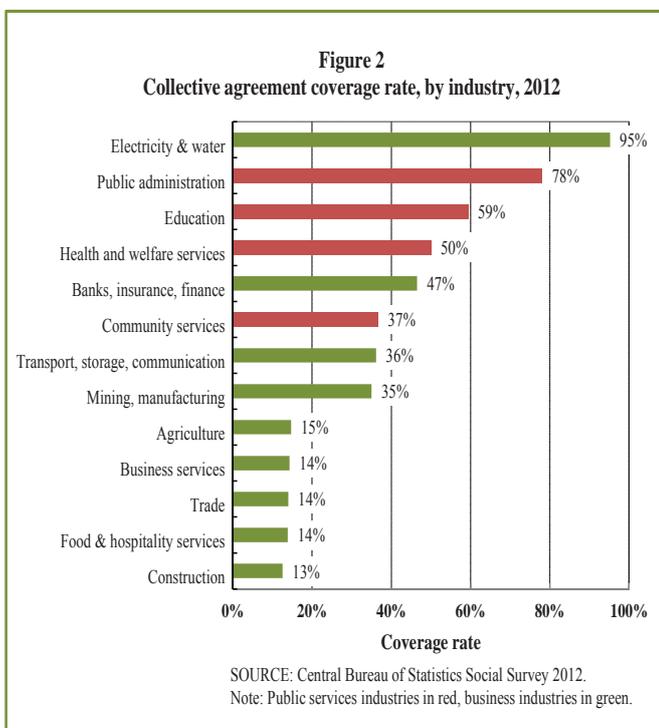
employment in the general government is common; it is lower in the education and health and social care industries, where there is direct employment (such as teachers employed by the Ministry of Education and local authorities) as well as employment through public corporations (government hospitals, universities, etc.); and it is lowest in the social services industry, in which employment through private nonprofit organizations which compete with each other is common. In public services industries the coverage rate is positively correlated with the average wage per employee post—salaries are high in public administration, lower in the education and health and social care industries, and lowest in the social services industries (the red circles in Figure 3).

When examining the coverage rate in business industries (Figure 2), it is found that it is high in concentrated industries such as the electricity and water industry and the finance industry. The average coverage rate in the transport and communication industry (36 percent) reflects both unionized government corporations, such as the ports and Israel Railways, as well as transport and communication companies, some of which were not unionized in the survey year (2012). The unionization rate in the finance industry and the communication industry is expected to increase with the unionization of the workers in insurance, credit card, and mobile communication companies. Similarly, the coverage rate in manufacturing reflects both government companies (such as Israel Aerospace Industries and Israel Military Industries) and established private companies (such as Teva, Elisra, the flour mills) in which the committees continued to

exist, as well as nonunionized companies. In other business industries, including business services, commerce, and food and hospitality, there is a low reported coverage rate. In parallel, in business industries as well there is a positive correlation between average salary in the industry and coverage rates (the blue circles in Figure 3).

It is not possible to draw firm conclusions regarding the reasons for the specific industry occurrences noted above, due to a lack of long term data on unionization rates in various industries, and due to the limited size of the sample in the Social Survey (2012). This sample does not allow the examination of whether industry coverage rates derive from personal characteristics of workers in the various industries. (The second section of this analysis examines the links between workers' personal characteristics, coverage under collective agreements, and labor market results in the public services industries as a group and in business industries as a group.) With that, it is possible to indicate a number of possible explanations for the high coverage rate in public services industries and in business industries with high concentration, and the correlation between the coverage rate and the average salary in public services industries and business industries.

A possible explanation for the positive connection between the coverage rate and the direct employment and the salaries which are typical of the public services industries may be that employees in "monopolistic" public organizations, which

Figure 2
Collective agreement coverage rate, by industry, 2012

SOURCE: Central Bureau of Statistics Social Survey 2012.
Note: Public services industries in red, business industries in green.

Figure 3
Salary per employee post (2011) and coverage rate (2012),

SOURCE: Central Bureau of Statistics Social Survey 2012, Labor Force Survey, Wage Statistics (2011).
Note: The size of each circle represents the number of employed people in the industry, based on the Labor Force Survey (2011).

are funded mostly through taxes, use their negotiating power in order to increase their salaries. However, there are at least two alternative explanations for the high unionization rate among employees with advanced education and the high salary in public administration. The first is that these workers have the education and skills required by the public sector, and the employer has an interest in generating occupational stability especially among them in order to prevent frequent turnover. The second alternative explanation is related to the first—the public system is interested in maintaining balance between the power of public workers and the power of the political echelons, so that key employees in the public service will be protected from layoffs with political tints.

The high coverage rate in concentrated business-sector industries is in line with the orthodox economic approach, which views labor unions as monopolies controlling the supply of labor to the employer (Booth, 1995). Such unions will improve workers' conditions when the employer has surplus value added, such as rent which results from concentration or barriers to entry, over which they can negotiate. The surplus value added is liable to add to the cost for direct or indirect consumers of products and services from the concentrated industries.

Interestingly, although economic theories forecast that workers will unionize in concentrated industries which have high profitability, it appears that the organization of workers in the cellular communications industry contradicts the theory: the workers' unionization in 2012–13 began precisely following the introduction of competition to the industry, and the lack of occupational security that resulted—Pelephone and Cellcom joined the Histadrut (General Federation of Labor), and Hot employees joined Koach La'ovdim (Democratic Workers Organization). This apparent paradox may possibly be explained by the cellular industry being a relatively new one. It was created in the 1990s, after the Histadrut's glory days. Additionally, as noted, in recent years occupational insecurity increased in the industry, and with it, workers' need for the protection of a collective agreement. Finally, legislation and legal rulings made it easier for workers to unionize.

In contrast to unions in concentrated industries, trade unions in competitive industries can improve workers' salary and their conditions only within the limitations imposed by the financial stability of the employers. Unionized companies are liable to be closed down and lay off their workers due to the competition with employers whose workers are not unionized and whose salaries are lower.[6] This claim is more applicable regarding tradable industries which compete with foreign companies on export markets and/or domestic markets. Thus, there is some tension between competition in the goods market, including liberalization of foreign trade and reduced customs duties, and effective operations of labor unions.

Another theoretical approach emphasizes the contribution of trade unions to improved labor productivity and thus to increased value added that can be shared between the employer and workers. Unions can increase labor productivity by employment stability, since it provides an incentive to employers and employees to invest in the specific human capital required by an employer. Likewise, trade unions can help to improve the quality of unionized workers by professional certification. In Israel, this can be seen in institutes for professional training which were set up by the Histadrut and other institutions (College of Management, the Israel Association of Graduates in the Social Sciences and Humanities, etc.), and in the entrenchment of professional training in wage agreements, as advanced training remuneration. However, to the extent that there is a weak link between the worker's specific profession and the training which make the worker eligible for advanced training remuneration, the contribution of such arrangements to productivity is very limited.

2. Employees covered by collective agreements and uncovered workers: demographics, education, and wage

Employees' personal characteristics—age, race, education, profession—are correlated with coverage by collective agreements and with salary. This section examines the links between these variables in the public services and business industries.

About one-third of salaried workers reported that they are covered by collective agreements. The coverage rate among women (38 percent) is higher than among men (31 percent), which fits well with the fact that about one-half of employed women work in public services industries, while less than one-quarter of men do. The coverage rate of employed people increases with age—up to age 35, the rate is less than one-quarter, and in the range of ages 50–64 the rate reaches about one-half (Figure 4). In effect, in each age group between 25 and 60, there are about 100,000 covered employees, and the lower coverage rate among the younger ages derives from the natural growth in the cohorts over time. The wave of unionization in recent years is only likely to change the age profile of the unionization rate, and the decline in the share of covered people over the years, to the extent that it strengthens and includes tens of thousands more employees from the younger age groups.

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[6] Lee and Mas (2011) present empirical evidence that in 1961–99 the profits of US companies declined after their employees unionized. The stock exchange market value of those companies declined by an average of $40,000 per unionized employee.

Figure 4
Covered and uncovered employees, by age

Employees (thousands)   Coverage rate

SOURCE: Central Bureau of Statistics Social Survey 2012.

Figure 5
Covered and uncovered employees, by length of service in current workplace (40+ years old)

Share of employees (40+ years old)

Length of service in current workplace (years)

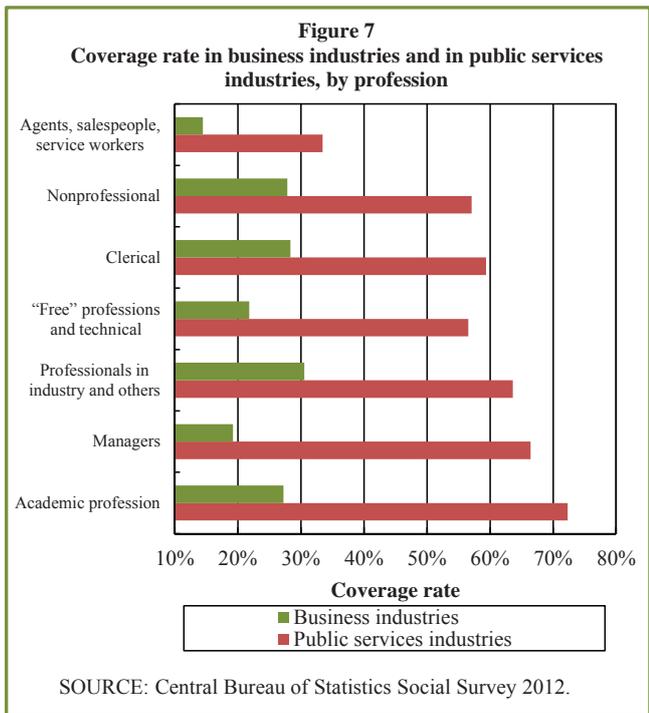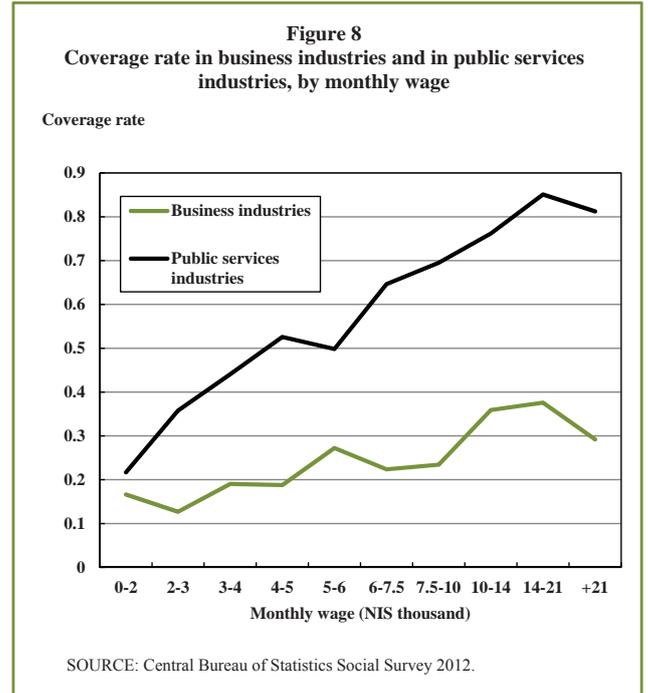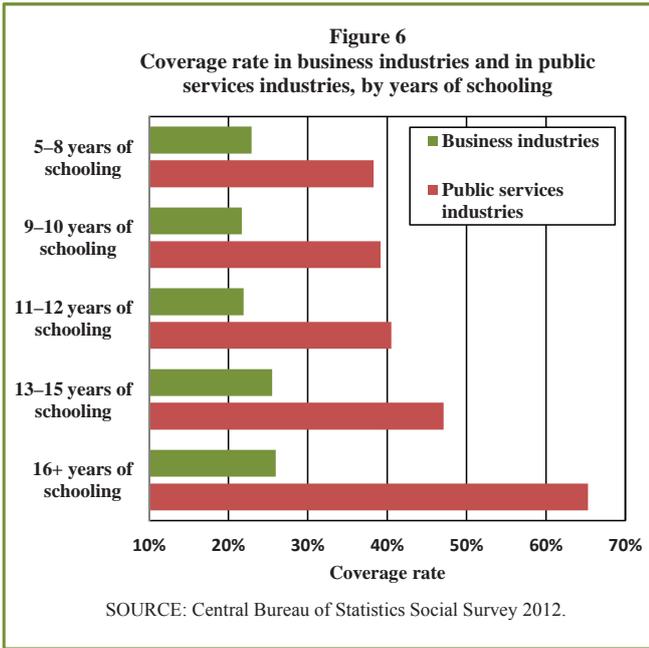SOURCE: Central Bureau of Statistics Social Survey 2012.

Another important characteristic that differentiates between workers who are covered and those who are not is persistence in the workplace. Covered workers often receive workplace tenure, and tend to stay there. In contrast, workers who are not covered tend to switch workplaces relatively often—when examining employees aged 40 and over, it is found the share of uncovered workers who remained for a given period out of all uncovered workers declines over the period, and it appears that in any given period some of them switch workplaces. Among covered workers, in contrast, the share of workers remaining over a given period increases over the period (Figure 5).

The collective agreement coverage is common primarily among salaried workers in public services industries who have a high level of education, and a high-status profession (Figures 6 and 7), such as managers and workers with academic professions. The coverage rate of workers with higher education in public services industries is higher than the coverage rate of workers without higher education in those industries, and the coverage rate of workers both with and without higher education in business industries. Specifically, among employees in public services industries, about two-thirds of the workers with 16 or more years of education and an academic profession reported that they are covered or that there is a workers committee at their place of work, and the coverage rate in those industries declines with level of education and the status of the profession. It should be noted that the positive correlation between coverage and

schooling exists as well in regressions which controlled for personal characteristics such as age, nationality, and gender (see Appendix table).[7]

The high coverage rate typical in public services industries, among workers with high levels of education, high-status professions, and with persistence in the workplace, suggest that to the extent unions do in fact increase the salaries of their members, they are increasing the salaries of such strong workers (as individuals), who do not belong to the weaker groups in the labor market. Indeed, when examining the wage distribution of covered workers and uncovered workers, it is found that in business industries there is a relatively weak connection between wage and coverage while in the public services industries the connection is significant. The coverage rate in business industries does in fact increase with the wage level, from 15 percent at low wage levels (up to NIS 3,000 per month) to around 35 percent at high wage levels (above NIS 14,000 per month). However, in public services industries the increase is sharp—the coverage rate increases from 20 percent at low salary levels to around 80 percent at higher salary levels (Figure 8).

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[7] It is likely that there is some bias in the correlation between education/status of profession and the coverage rate reported in public service industries, since workers with higher education may be more aware of their employment contract details. However, since business industries do not have a similar correlation, it appears that this is not the main factor in the link between education/status of profession and the coverage rate in in public service industries.

Figure 6
Coverage rate in business industries and in public services industries, by years of schooling

SOURCE: Central Bureau of Statistics Social Survey 2012.

Figure 7
Coverage rate in business industries and in public services industries, by profession

SOURCE: Central Bureau of Statistics Social Survey 2012.

Figure 8
Coverage rate in business industries and in public services industries, by monthly wage

SOURCE: Central Bureau of Statistics Social Survey 2012.

Mincer wage regressions allow the examination of the link between salary and return to schooling and coverage by a collective agreement, while controlling for personal characteristics such as gender, nationality, and industry. The regressions analyze employee wages in the economy overall (columns I–II), in business industries (columns III–IV), and in public services industries (columns V–VI). Column I presents the coefficient of years of schooling in the overall sample, 6.9 percent, which serves as an approximation of

return to schooling. This coefficient is slightly lower than the estimates from regressions which were run based on Income Surveys—8 to 10 percent (Frish, 2007; Melzer 2013). This is apparently due to measurement errors influencing this analysis—the Social Survey analyzed here condensed wage and years of schooling variables.[8]

Column II includes the dummy variable for coverage under collective agreement and the interaction between coverage and years of schooling, and thus allows the examination of whether the correlation between education and salary was different for covered workers and uncovered workers. In this regression, the dummy variable for coverage is not statistically significant, and is already offset by the return to schooling for covered workers at very low schooling levels (3 years). The coefficient of general years of schooling is slightly lower than above, while the coefficient of interaction between years of schooling and the coverage (4.54 percent) is large, and statistically significant. This finding indicates that for a covered worker, the return to schooling is larger by about two-thirds than the return for an uncovered worker.

[8] The Social Survey questionnaire combined data on salary, years of schooling, and number of weekly work hours. In order to estimate a parallel regression in the Mincer regression, we applied the middle of the range for salary and years of schooling variables, and defined dummy variables for weekly work hours. This specification yields measurement errors which bias the least squares estimation toward zero.

The regressions in columns III–VI refer to salaried employees in business industries and public services industries, and indicate that the correlations between education and collective agreements were difference in these two groups. The regressions in columns III-IV indicate that collective agreements have a limited connection with the level of salary in business industries—the wage gap between covered employees and uncovered employees is statistically insignificant, and the return to schooling is not correlated with collective agreements. In contrast, in public services industries, the average return to schooling of a covered worker is double the average return of an uncovered worker. This twice-as-large return derives from, among other things, the wage scales typical in the public sector. These wage scales encourage covered workers in the public sector to acquire higher education, which could contribute to the worker's productivity. It can also be seen that the coefficient of years of schooling (without interaction) in business industries is lower by a very small amount than the parallel coefficient in public services industries. In effect, any additional return for unionized workers in the total employee population (column II) derives from the public services industries, in which labor unions and collective agreements play a decisive role in setting salary.

The findings presented in this analysis thus indicate that the coverage rate of workers with high education, in public services industries, is greater than the coverage rate of workers without high education in those industries, and greater than the coverage rate of workers in general in business industries. Furthermore, regression estimates indicate that covered workers with higher education in public services industries benefit from a return to schooling which is double that of uncovered workers in those industries and covered or uncovered workers in business industries. In light of these findings the question arises as to whether labor unions reduce the economic gaps in the economy or actually widen them. The findings available to date do not provide a clear answer to that question.

Table 1: Return to education and return to collecitve agreement
(dependent variable—log of wages)

	General population		Business industries		Public services industries	
	I	II	III	IV	V	VI
Years of schooling x	6.93	6.3	5.99	6.08	8.61	6.73
100	(0.32)***	(0.38)***	(0.38)***	(0.43)***	(0.60)***	(0.85)***
Collective agreement x		-10.87		7.91		-14.00
100		(10.17)		(12.36)		(10.07)
Years of schooling x		4.54		-1.12		7.21
Collective agreement x						
100		(1.96)**		(2.47)		(3.69)*
R2	0.54	0.55	0.53	0.53	0.56	0.58
Observations	3,660	3,660	2,409	2,409	1,251	1,251

1. In order to estimate a Mincer equation, salary and schooling variables, which were condensed in the questionnaire, were accorded the average value of the range. For example, individuals who reported a monthly salary of NIS 3,000-4,000 were accorded NIS 3,500.

2. The coefficients for dummy variables for gender, nationality, work hours (condensed), industry (condensed) and age (condensed) are not reported.

Statistical significance: *10 percent, ** 5 percent, *** 1 percent.

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Appendix Table: The link between coverage and demographic variables
(Dependent variable is coverage under a collective agreement)

	All employees	Business industries	Public services industries
	I	II	III
Female	5.54	-3.87	2.42
	(1.53)***	(1.75)**	(2.87)
Arab	5.02	-4.47	11.33
	(2.46)**	(2.74)	(4.05)***
1–4 years of schooling	-23.48	-14.52	-52.84
	(6.67)***	(9.68)	(5.76)***
5–8 years of schooling	-7.51	-1.83	-12.4
	(4.82)	(5.21)	(10.43)
9–10 years of schooling	-7.52	-4.63	-8.87
	(4.01)*	(4.19)	(10.03)
11–12 years of schooling	0	0	0
	0	0	0
13–15 years of schooling	5.77	3.69	6.41
	(2.15)**	(2.39)	(4.78)
16+ years of schooling	15.95	2.03	22.42
	(2.11)***	(2.39)	(4.43)***
Age 20–24	-2.54	-5	-2.69
	(2.96)	(3.25)	(6.78)
Age 25–29	-2.24	-3.81	-4.72
	(2.62)	(2.88)	(5.35)
Age 30–34	0	0	0
	0	0	0
Age 35–39	4.9	-2.2	18.42
	(2.87)*	(2.97)	(5.56)***
Age 40–44	10.02	1.56	19.59
	(3.01)***	(3.23)	(5.59)***
Age 45–49	13.45	3.28	20.36
	(3.18) ***	(3.64)	(5.56)***
Age 50–54	21.86	12.97	24.72
	(3.32)***	(4.06)***	(5.60)***
Age 55–59	27.17	16.4	28.88
	(3.54)***	(4.49)***	(5.72)***
Age 60–64	21.99	18.95	16.11
	(3.79)***	(4.82)***	(6.31)***
Age 65–74	12.3	2.23	12.78
	(4.56)***	(5.46)	(7.65)*
Age 75+	-14.04	-22.91	-11.38
	(8.57)	(2.41)	(18.13)
R2	0.07	0.04	0.11
Observations	3,962	2,612	1,350

Notes: Standard deviations in parentheses.
Base group: Males aged 30-34, and 11-12 years of schooling.
Statistical signficance: *10%, **5%, ***1%.

Statistical Tables

Table 1.1 National Accounts, 2012-2013								
(percentage change in annual terms, at constant prices, seasonally adjusted)								
		Change from previous quarter					Year-on-year change[b]	
		2012		2013			2012	2013
	2012[a,b]	III	IV	I	II	III	II	III
GDP	3.4	4.3	3.6	2.6	4.6	2.2	5.3	2.4
Business-sector product	3.4	4.6	4.1	2.3	5.7	2.1	5.9	2.6
Private consumption expenditure	3.2	1.5	3.8	4.9	6.2	5.6	4.4	4.5
Gross domestic investment	6.3	3.4	-5.0	-14.3	9.9	20.8	7.1	6.0
Fixed investment	3.5	-6.8	-12.2	-1.4	4.4	16.9	-2.5	1.4
Goods and services exports excl. diamonds	5.1	-14.8	-10.0	14.4	0.7	-25.4	-2.9	-6.2
Goods exports[c]	-3.5	-7.8	-14.1	9.6	-10.4	-8.0	-6.7	-9.1
Services exports[c]	11.3	-25.2	1.8	26.0	27.3	-26.8	5.3	6.0
Goods and services imports excl. diamonds[d]	5.2	-14.2	-14.6	0.9	6.2	10.8	-4.8	0.5
Goods imports[e]	2.0	-14.4	-18.6	11.3	9.7	10.3	-2.6	2.1
Services imports[e]	2.4	-11.5	-2.1	-5.5	-5.3	9.3	-5.7	0.0
Public sector consumption	3.2	-1.0	8.5	-1.2	7.9	4.5	4.9	4.2
Public consumption excluding defense imports	2.8	1.9	6.6	1.7	6.1	1.5	5.2	3.0
Domestic use of resources	3.7	2.9	1.9	0.2	8.1	9.2	5.1	4.8

[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 (percentage change, in annual terms, seasonally adjusted)									
							April-September		
	Change from previous month						Change from previous period	Year-on-year change[a]	Last month for which data available*
	2013								
	Apr	May	Jun	Jul	Aug	Sep			
Composite state-of-the-economy index	0.3	0.2	0.2	0.2	0.2	0.2	1.4	2.6	September
Large-scale retail trade	0.9	2.5	-1.7	1.0	4.0	-4.2	2.0	-0.9	September
Industrial production (excl. diamonds)	-0.8	-1.4	0.1	0.9	-4.1	0.2	-2.5	-3.5	September
Index of trade revenue	3.4	-1.8	-1.3	1.0	0.2	-0.9	2.1	2.2	September
Index of trade and services revenue	3.3	0.4	-2.7	0.6	0.0	0.3	1.9	2.9	September
Index of services exports	1.7	1.0	2.3	-2.3	1.2	0.6	5.0	3.6	September
Tourist arrivals	12.4	-4.9	-0.1	-2.8	-2.0	-3.9	4.8	-2.3	September
Residential construction									
Starts	-5.6	-3.9	9.4	-5.6	4.9		-9.7	-4.8	August
Completions	10.0	-4.2	-7.2	3.3	-1.1		5.7	11.2	August
ILA land permits (units)[a,b]	2,702	1,444	1,624	1,699	473				August
Climate indices based on Business Tendency Survey[c]									
Assessment of present activity: total business sector	0.33	0.29	0.32	0.28	0.33	0.31			September
Assessment of present activity: manufacturing industry	0.26	0.24	0.25	0.26	0.31	0.27			September
Assessment of present activity: services industry	0.38	0.32	0.35	0.30	0.35	0.33			September
Assessment of future activity: total business sector[d]	0.28	0.28	0.29	0.30	0.28	0.25			September
Business Climate Index (total business sector)	0.30	0.32	0.29	0.31	0.27	0.31			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 and refer to the month in which the survey was conducted.

[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, 2012-2013 (percentage change, seasonally adjusted)							April-September		
		Percent change from previous quarter					Change from previous period	Year-on-year change[a]	Last month for which data available*
	III/2013 (thousand)	2012		2013					
		III	IV	I	II	III			
Civilian labor force	3,688.8	1.1	0.0	0.4	0.4	0.5	0.5	1.5	September
Israeli employees	3,465.3	1.1	0.0	0.7	0.2	1.3	1.3	2.3	September
of which : in public services	1,232.3	2.1	-2.3	3.0	0.1	2.2	2.2	3.2	September
in business sector	2,234.1	1.1	1.1	0.0	0.0	0.6	0.6	1.7	September
Foreign workers and Palestinians (unadjusted)		2.5	-1.1	3.0	0.3				June
Average hours worked weekly per Israeli employee	35.0	-1.4	-0.6	0.3	2.2	-4.1	-4.1	-4.0	September
Weekly labor input in business sector (incl. foreign workers and Palestinians)		-0.6	0.0	-0.2	1.6				June
of which: Israelis		-0.9	0.0	-0.8	1.9				June
Weekly labor input in public services (Israelis)		-1.1	-0.9	2.0	2.5				June
Unemployed	223.4	0.6	0.1	-3.6	3.6	-10.3	-10.3	-9.1	September
Job seekers		1.6	1.1	-0.9					January
Claims for unemployment benefits	85.5	6.9	-0.8	2.2	5.2	1.9	7.3	11.2	September
Balance of Employment[b]		0.6	0.5	0.8	0.8	1.3			September
Job vacancies[a]	63.2	0.0	-2.5	-0.3	-3.5	-0.7	-4.0	-2.5	September
	(NIS)								
Real wage per employee post[c]		0.1	0.8	-0.6	0.9	0.0	0.6	1.2	August
In public services		-0.5	0.7	0.3	0.5	0.5	0.7	1.1	August
In business sector		0.2	0.9	-0.8	1.2	-0.1	0.6	1.2	August
Nominal wage per employee post[c]	9,056.4	0.3	1.1	-0.3	1.4	0.5	1.4	2.6	August
In public services	8,679.7	-0.4	1.0	0.6	1.0	0.8	1.5	2.6	August
In business sector	9,241.9	0.3	1.6	-0.8	1.5	0.6	1.2	2.7	August
Unit labor cost		-1.1	-0.5	0.3	-1.6				June
	Percent, seasonally adjusted								
Participation rate		64.1	63.8	63.7	63.7	63.7			September
Employment rate		59.7	59.4	59.5	59.4	59.9			September
Unemployment rate		6.8	6.9	6.6	6.8	6.1			September
Depth of unemployment[d]		23.8	26.7	26.6	26.4	18.5			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] Posts filled minus terminations of employment, as a percentage of the total number of employees in businesses in the Employers Survey Sample. The calculation is made by the Bank of Israel.

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

[d] 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, 2012-2013									
							April-September		
		Change from previous quarter					Change from previous period	Year-on-year change	Last month for which data available*
		2012		2013					
	2012[a]	III	IV	I	II	III			
Domestic deficit, as percent of GDP	-2.9	-2.6	-6.4	-0.9	-1.2	-1.0			September
Total deficit excluding credit, as percent of GDP	-3.9	-3.6	-7.4	-1.8	-2.1	-1.4			September
Deviation from domestic budget path, excl. credit extended:[b]					(NIS billion)				
Revenue		-5.2	-6.9	-3.1	-0.6	3.9	8.3	8.3	September
Expenditure		1.1	1.1	-3.3	-8.8	-8.7	0.1	-4.6	September
Deficit		-6.3	-8.0	0.2	8.1	12.6	2.8	10.2	September
Total deficit excluding credit	-39.0	-9.1	-18.8	-4.6	-5.5	-3.9	14.1	9.3	September
		Real change year-on-year (percent)							
		2013							
		Apr	May	Jun	Jul	Aug	Sep		
Government domestic revenues excluding credit		-5.1	12.9	16.0	11.3	12.5	15.3	10.1	September
Government tax revenue		6.6	17.0	15.6	11.4	6.4		11.4	August
of which : income tax, net		4.5	30.8	11.0	16.7	17.3	7.1	14.6	September
VAT, gross		11.1	4.7	14.5	13.1	-0.9	1.3	7.1	September
Government expenditure excluding credit		-5.6	1.3	3.4	6.0	1.3	8.3	2.4	September
National Insurance allowances		6.1	4.3	4.0	2.3	-0.3		3.2	August
of which : Unemployment benefit		9.8	10.6	20.6	12.6	9.3		12.6	August
Income support[c]		6.3	1.4	4.0	1.3	2.6		3.1	August
Payments to the National Insurance Institute by the public		5.4	6.4	3.3	3.4	5.9		4.9	August

[*] 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, 2012-2013
(Seasonally adjusted)

							April-September		
							Change from previous period	Year-on-year change[b]	Last month for which data available*
		Change from previous quarter							
		2012		2013					
	2012[a,b]	III	IV	I	II	III			
	(rate of change, percent)[c]								
Trade in goods[d]									
Goods imports	-1.4	-1.8	-2.9	-0.5	3.2	2.9	4.4	0.6	September
of which : Consumer goods	-5.6	-1.7	-0.1	6.0	4.5	3.8	9.6	11.7	September
Capital goods	-5.7	-9.6	-2.4	-14.4	12.4	10.7	9.2	-5.6	September
Intermediates	2.0	1.1	-4.2	1.7	0.0	-0.8	0.5	-2.0	September
Goods exports	-3.1	7.2	-6.2	9.4	-1.9	-6.7	-0.9	-1.4	September
of which : Manufacturing	-3.2	7.0	-6.5	10.1	-2.0	-7.7	-1.2	-1.7	September
of which : High-tech	-3.1	14.8	-10.9	12.7	-10.9	-4.1	-7.5	-10.3	September
Balance of payments	$ million								
Goods and services exports	93,288	23,486	23,121	23,652	23,824				June
Goods and services imports	93,500	22,801	22,502	22,305	22,096				June
Balance of trade in goods and services account	-213	685	619	1,346	1,728				June
Balance of trade in current account	335	754	669	1,873	1,789				June
Surplus/deficit in financial account (excl. foreign exchange reserves)[b]	-6,262	140	-3,924	-451	-332				June
of which : Nonresidents' direct investments[b]	9,481	3,509	-94	3,512	4,697				June
Nonresidents' portfolio investment[b]	-3,513	326	-555	1,739	342				June
Residents' direct and portfolio investment abroad[b]	9,217	2,794	2,854	3,911	1,837				June
Bank of Israel foreign currency reserves, end-period[b]	75,906	76,199	75,906	77,003	78,213	79,823	3.7	4.8	September
Net external debt (percent of GDP)[b,e]	-26.6	-27.6	-26.0	-26.3	-27.0				June

* 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
(rates of change, percent)

| | Change from previous month 2013 | | | | | | April-September | | Last month for which data available* |
	Apr	May	Jun	Jul	Aug	Sep	Change from previous period	Year-on-year change	
CPI	0.4	0.1	0.8	0.3	0.2	0.0	1.8	1.3	September
Consumer price index, seasonally adjusted	-0.1	-0.1	0.6	0.2	0.0	0.2	0.8	1.3	September
Price index of owner-occupied homes[a]	-0.2	1.0	1.2	0.6	0.6		3.3	10.1	August
General share-price index[b]	-1.5	2.3	-2.4	1.0	-1.1	4.8	3.0	-0.6	September
Real effective exchange rate[c]	-2.2	0.0	-0.5	-1.6	-0.2	0.2	-5.9	-7.6	September
Nominal effective exchange rate	-1.9	-0.1	0.1	-1.3	-0.2	-0.2	-5.7	-7.7	September
Nondirected bank credit	0.0	0.0	0.2	0.1	0.6	-0.1	0.7	2.4	September
Effective interest rate in daily deposit auction[b]	1.8	1.7	1.2	1.3	1.3	1.3	1.4	2.4	September
Yield to maturity on 5-year notes[b]	0.3	0.1	0.3	0.3	0.3	0.4	0.3	0.8	September
Risk premium[b,d]	-5.7	-2.4	11.2	-10.5	5.5	6.1	-13.7	-49.2	September
Change during previous 12 months[e]									
CPI	0.8	0.9	2.0	2.2	1.3	1.3	1.3	1.4	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]			2011	2012	2013 Projection	2014 Projection
World GDP			3.9	3.1	3.1	3.8
	Advanced economies		1.7	1.2	1.2	2.1
	Emerging and developing economies		6.2	4.9	5.0	5.4
World trade			6.0	2.5	3.1	5.4
	Advanced economies	Imports	4.7	1.1	1.4	4.3
		Exports	5.6	2.0	2.4	4.7
	Emerging and developing economies	Imports	8.7	5.0	6.0	7.3
		Exports	6.4	3.6	4.3	6.3
Commodity prices ($)	Oil[c]		31.6	1.0	-4.7	-4.7
	Nonfuel		17.9	-9.9	-1.8	-4.3
Inflation (CPI)	Advanced economies		2.7	2.0	1.5	1.9
Short-term interest rate (%)[d]	Dollar deposits		0.5	0.7	0.5	0.7
	Euro deposits		1.4	0.6	0.2	0.4
Unemployment rate	Advanced economies		7.9	8.0	8.2	8.1

[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 2012 was $105.01, excluding freight costs. Estimated price for 2013 is $100.09 and for 2014, $95.36.

[d] Six-month Libor rate for US dollar deposits, and three-month Libor rate on euro deposits.
SOURCE: World Economic Outlook (IMF), July 2013.