Chapter 2
GDP, Uses and the Principal Industries

- Israel's GDP growth rate declined to 3.1 percent this year, after growth of 4.2 percent in the previous year.
- Israel's economic growth in recent years has been stronger than in most advanced economies, including the US and countries in the eurozone. These countries are coping with the direct effects of the continuing global crisis, which has affected Israel primarily through weak global demand.
- Alongside the dominant effect of the global crisis, there were a number of domestic factors that adversely affected economic activity, including geopolitical tension and the increase in the economy's expenditure on energy imports. In addition, the growth rate in the construction industry slowed relative to its record level in 2011.
- The slowdown in demand during the year was absorbed primarily by imports, while the rate of growth in GDP slowed only somewhat. As a result of the flexibility of the labor market, unemployment remained low relative to past years.
- The economy's productive capacity expanded rapidly this year. Thus, the stock of physical capital increased rapidly relative to the past, due to the high rates of business fixed investment in previous years, and the labor supply grew as the participation rate increased.
- A combination of supply and demand factors widened the output gap, which involved lower utilization of equipment and machinery, and contributed to shekel depreciation in the average real exchange rate.
- The current account surplus contracted this year, continuing its decline of last year. This was due to the increase in the import of fuels and moderation of global demand. The reduction of the size of the surplus in recent years has also been the result of the public sector shifting to a deficit during the last four years.
- The rate of growth slowed in 2012 in both export-oriented and domestically oriented industries.
- Manufacturing grew by only 0.8 percent (excluding the electronic components industry, where growth accelerated as a result of the newly opened Intel factory), due primarily to the weakening of foreign demand but also due to weaker domestic demand.
- The business services industry grew at a rate of 4.9 percent, as a result of the continuing shift from manufacturing to services, and also as a result of the increase in global demand for computer and R&D services, which account for a significant proportion of the industry's output.
- Investment in infrastructure increased by 26 percent this year. The increase encompassed almost every infrastructure industry, although particularly the energy industry (oil and gas), due to the investment in the gas fields discovered in Israel, and in the electricity and water industries. There was also growth in investment in transportation infrastructure, particularly land transportation. In contrast, investment in communication declined.
- The construction industry grew by 4.3 percent this year, after growing at an annual rate of 9 percent in each of the past two years. The level of activity in the industry reached its highest level in the past decade, as did the stock of new homes available for sale. The number of building starts fell this year, in parallel with the reduced number of building permits issued by the local committees.

1. MAIN DEVELOPMENTS AND BACKGROUND CONDITIONS

Economic growth moderated this year to a rate slightly lower than the long-term average, but still more rapid than most of the developed economies.

Israel's GDP growth rate declined to 3.1 percent this year, following growth of 4.6 percent in the previous year. The rate of growth of imports and uses also slowed, but as with the GDP growth rate, their rate of growth was not significantly different from their long term average (Table 2.1). Growth in Israel in recent years has been stronger than in most developed economies, including the US and the eurozone countries since, unlike Israel, they have to deal with the direct effects of the continuing global crisis. Israel has been affected by the crisis primarily through the moderation of global demand. Nonetheless, the difference in rates of growth between Israel and other developed economies narrowed this year and the difference in per capita terms is already quite small.

The weakening in global demand as a result of the worsening debt crisis in the EU has been the dominant factor behind the downtrend in growth since the second quarter of 2011. Apart from this external influence, economic activity was also adversely affected by domestic factors, including the geopolitical tension in the region and Operation Pillar of Defense, as well as the increase in the economy's expenditure on energy imports. In addition, the rate of expansion in the construction industry declined relative to its record level in 2011.

Demand moderated and productive capacity increased.

The continuing slowdown in the rate of growth of world demand continued to affect exports, which grew at a moderate rate, particularly if one excludes the one-time increase in exports by Intel. The weakness in demand from abroad also affected domestic demand which, together with the effect of domestic background factors, led to slower rates of growth in private consumption and investment (Table 2.3). On the sources side, imports declined and absorbed a significant proportion of the slowdown in domestic demand, and the rate of growth in GDP slowed again somewhat, relative to the end of 2011.

The increase in the economy's productive capacity accelerated this year. Thus, the beginning-of-year stock of physical capital grew rapidly relative to past years, which reflected significant growth in business fixed investment in previous years. In addition, labor supply grew as a result of the increased participation rate, which was reinforced by the resilience of GDP and the domestic labor market to the global crisis. The combination of demand and supply factors increased the output gap in Israel, which was primarily reflected in the utilization of physical capital. At the same time, the number of employed persons and labor input continued to grow and the unemployment rate remained low relative to the past.

During the last 18 months, the Israeli economy has shifted from growth that was faster than its potential to growth that is somewhat slower than its potential. As a result, and in contrast to last year, there has been a switch from appreciation of the real exchange rate to depreciation (Table 2.1). This has occurred through, among other things, the response of the Bank of Israel, which reduced the interest rate during this period and narrowed the interest rate gap relative to abroad. During the last quarter of the year, the real exchange rate appreciated at a rate that was characteristic of most of the recent years.

Table 2.1
Indicators of Economic Activity, 2004–11

(percent change in annual terms)

						2012	
	2004-08	2009	2010	2011	2012	First half	Second half
GDP	5.1	1.1	5.0	4.6	3.1	2.8	2.6
Per capita GDP in Israel	2.4	-3.6	3.0	1.9	1.6	1.4	1.4
GDP of OECD countries	3.2	-0.7	3.1	2.7	1.2	1.0	0.7
Per capita GDP in OECD countries	1.7	-4.2	2.4	1.3	1.0	0.8	0.8
Unemployment rate (%)	10.3	9.5	8.4	7.1	6.9	6.9	6.8
Real effective exchange rate	-0.4	1.8	-5.1	-1.4	3.7	3.1	4.1
Terms of trade	-2.3	8.3	-3.1	-3.5	1.2	1.2	1.3
Advanced economies' imports	5.9	-11.9	11.4	4.0	1.7	1.6	0.5
Exports excluding diamonds	11.7	-9.9	10.8	4.1	4.2	10.4	-2.0
Domestic uses	4.3	0.6	4.3	6.6	4.2	6.5	-1.3
Imports excluding diamonds	8.5	-12.2	9.4	9.0	6.9	19.6	-11.3
Bank of Israel interest rate (period average)	4.1	0.8	1.6	2.9	2.3	2.5	2.2

* Half-year data are in annual terms.

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

Supply and demand factors expanded the output gap, contributing to a real devaluation of the shekel until the turnaround that occurred in the last quarter of the year.

The current account surplus declined this year, which continued the trend of the previous year. The decline in the surplus during the past two years has, to a large extent, been due to the sharp rise in expenditure on energy imports, which was caused by the interruption in the supply of natural gas and the increase in global prices of fuel, as well as the weakening of demand in Europe. The decline in the current account surplus also contributed to the drop in national savings during the last four years, with the public sector shifting from a balance (and sometimes even positive savings) during 2005–08 to negative savings in 2009–12. An additional explanation for the decline in the surplus is the relative robustness of domestic demand, and investment in particular, partly as a result of the low interest rates maintained in Israel and abroad as a result of the crisis.

a. Global developments and their influence on the Israeli economy

The debt crisis in Europe was at the center of economic developments this year.

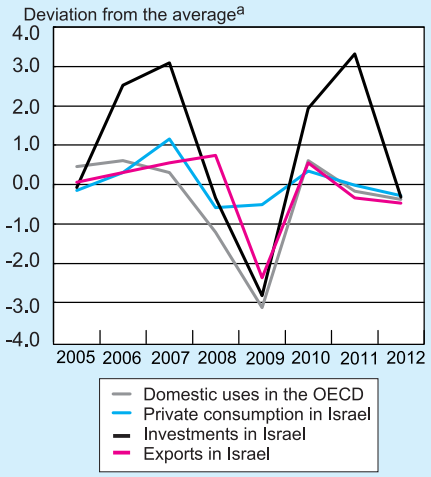
During 2012, the global slowdown in growth and in the growth rate of world trade continued. The debt crisis in Europe was at the center of economic developments this year. The GDP of the eurozone contracted this year and the slowdown spread to the stronger members of the bloc as well, such as Germany. In contrast to Europe, economic activity in the US is recovering, albeit at a slow pace. Thus, the US growth rate increased somewhat and unemployment fell slightly, and there has been an uptick in the housing market. Nonetheless, the level of economic activity is still low and the recognition of the need for fiscal restraint, in the short and/or long term, is holding

back the recovery.[1] This factor is common to both the US and European economies, which are suffering from a problematic fiscal situation that has helped fuel the crisis. They are thus having difficulty financing an expansion that will moderate the effects of the current stage of the crisis on global demand.

Global activity affects domestic activity mainly through its effect on exports.

Global demand, and the link between it and Israel's exports, constitutes the main channel through which global developments are affecting the macroeconomic situation in Israel. Thus, it is estimated that a change of one percent in world trade leads to a change of approximately one percent in Israeli exports.[2] As can be seen from Figure 2.1, Israel's exports have been leveling off in parallel to the weakening of demand in developed economies during the past two years. However, the transmission from exports to domestic demand is not immediate. While the global crisis worsened during the second quarter of 2011, the rate of growth in private consumption and in investment responded with somewhat of a lag and remained low this year. For purposes of comparison, in 2008, the rate of growth in investment and private consumption in Israel fell significantly even before the height of the crisis, somewhat after the weakening in global uses. This is despite Israeli exports continuing to grow at a reasonable rate until the crisis intensified in late 2008, at which point there was a significant deterioration.

Figure 2.1
Uses in Israel and Other Advanced Economies, 2005-12



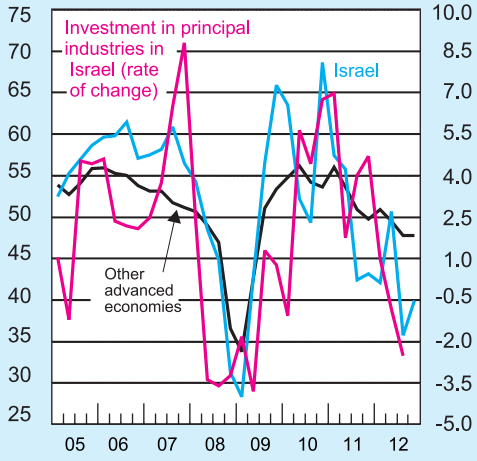
[a] The vertical scale: The gap between the rate of change in a given year and the average rate of change from 1999 to 2012, divided by the rate of change.
SOURCE: Based on Central Bureau of Statistics and OECD.Stat data.

Although global economic activity affected the domestic economy primarily through the demand for exports, this was not the only channel of transmission. The other channels determine the timing, the intensity and the manner in which global activity affects Israel's economy. Here we will describe the three major channels, while also relating to how they operated in 2008. The first is the trend common to the capital markets in Israel and abroad and the effect of these markets on the public's wealth and, in turn, on private consumption (Figure 2.2). Global capital markets have been relatively stable during the past two years, despite the problems besetting the EU. This has contributed to the stability of the capital market in Israel, and to consumption of durables remaining high at 10.5 percent of total consumption (which is high relative to past years). During the 2008 crisis, the capital market channel operated with greater intensity already at the beginning of the year and the consumption of durables

1 For further description of global developments, see Section 1 of Chapter 1.

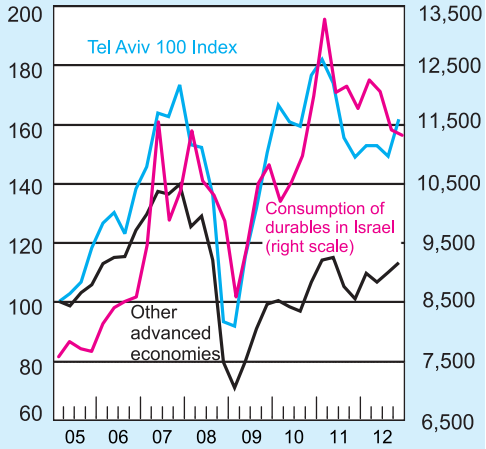
2 See A. Friedman and Z. Hercowitz (2010) "A Real Model of the Israeli Economy", Discussion Paper 2010.03, Bank of Israel, Research Department.

Figure 2.2
Purchasing Managers Index in Israel and Around the World, and Investment in Principal Industries in Israel, 2005-12



SOURCE: Based on data from Central Bureau of Statistics, Bank Hapoalim's Purchasing Managers Index, Israel Purchasing and Logistics Managers Association, and Bloomberg.

Figure 2.3
Stock Markets in Israel and Abroad, and Consumption of Durables in Israel, 2005-12
(2005:Q1 = 100)



SOURCE: Based on data from Central Bureau of Statistics, Tel Aviv Stock Exchange and Bloomberg.

declined significantly, in parallel to the drop in stock market indices in Israel and worldwide.

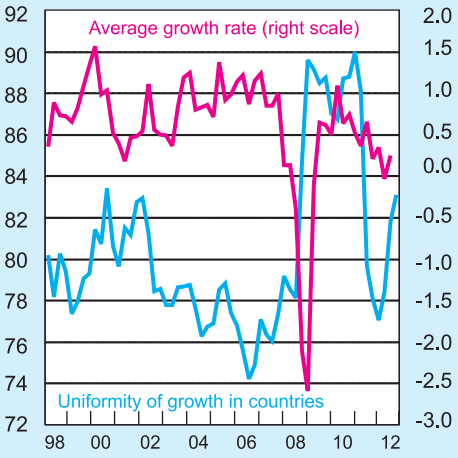
The additional channels through which global activity affects domestic activity include the trend common to the capital markets in Israel and abroad, the link between the expectations of the public in Israel and the public abroad, and the monetary policy channel.

The second channel is the link between the expectations of economic developments among the public in Israel and the public abroad. This connection is manifested in the common trends in stock market indices (as can be seen in Figure 2.2) and in the connection between purchasing manager reports in Israel and abroad (Figure 2.3), which reflect to some extent their degree of optimism. During the past two years, the purchasing managers indices in advanced economies have gradually declined and with them the indices in Israel. However, as can be seen, until the beginning of 2011, the reports of purchasing managers in Israel were more optimistic than in other countries, while in 2012 they were more pessimistic, partly as a result of domestic geopolitical risks. Therefore, the rate of increase in business fixed investment has fallen (with a longer lag than in the case of other developments), which occurred in parallel with the drop in the purchasing managers index in Israel. In 2008, purchasing managers indices in Israel and abroad moved in tandem in terms of magnitude and timing, and industrial investment developed accordingly.

The third channel is that of monetary policy. The Fed rate is close to zero and is expected to remain so at least until unemployment falls to 6.5 percent (the unemployment rate as of the end of 2012 was 7.7 percent) and as long as price stability is maintained. The ECB interest rate is also low. Global demand and demand in Israel are positively influenced by the low interest rate environment being maintained in Israel and worldwide, which is meant to stimulate economic activity. However, the interest rate gap between Israel

and developed markets—against the background of differing growth rates during both the current phase of the crisis and the previous one—has for a long time been creating pressure for a real appreciation. The narrowing of the gap, along with other factors, has for most of the year created pressure for a depreciation. It is estimated that an appreciation (depreciation) of one percent in the real exchange rate leads on average to a decrease (increase) of about 0.2 percent in Israel's exports.

Figure 2.4
Uniformity of Growth in Various OECD Countries, and Average Growth Rate, 1998-2012
(percent, out of the differential in rates of change each year)



SOURCE: Based on Central Bureau of Statistics and OECD.Stat data.

The extent to which key countries in the global economy experience negative economic developments increases the probability that they will be shared with other countries and that more than one channel of transmission to other countries, including Israel, will come into play. Figure 2.4[3] indicates that during the current stage of the crisis the link between economies was weak relative to that at the height of the crisis in 2008. In contrast to the current stage of the crisis, 2008 was characterized by the collapse of banks and some of the large financial companies, major declines in world capital markets and a global credit shortage.

b. Domestic background conditions and economic policy

(i) Domestic background conditions

In addition to the dominant influence of the global slowdown, there were two domestic background factors that dampened economic activity this year. The first was geopolitical uncertainty, which intensified as a result of concern of conflict with Iran and the unstable regimes in Egypt and Syria. It is possible that these factors contributed this year to the slower rate of growth in investment—via increased business risk—and to the slower rate of growth in the consumption of durables, via the underperformance of stock market indices in Israel. Additional factors include the modest negative effect of Operation Pillar of Defense on growth in the last quarter of the year.

Second, the cancellation of the natural gas agreement with Egypt, the diminishing supply of gas from the Yam Tethys reservoir and the increased price of fuel worldwide,

[3] The graph presents the percentage of accumulated variance from a Principal Components Analysis (PCA). The analysis was carried out on the basis of five linear combinations that explain the maximal variance in the time series of growth in GDP for 34 developed countries.

led to a significant increase in the economy's expenditure, particularly that on electricity production. At this stage, the effect has been manifested mainly in the growing debt of the Israel Electric Corporation and in the reduction of the current account surplus, though not in the welfare of households or in the rate of growth in GDP. This is the result of a decision to spread out the effect of the use of more expensive fuels on the price of electricity and to take into account that the natural gas from the Tamar field is expected to become available during the second quarter of 2013.

Domestic factors that dampened economic activity this year are the geo-political tensions and Operation Pillar of Defense, and the increase in the imports of energy products.

Residential building starts, which are still at a high level relative to past years, fell this year, primarily as a result of the number of building permits issued. Thus, the annual rate of growth in the construction industry fell from 9 percent in 2010 and 2011 to 4.3 percent this year, and the industry's contribution to the growth in GDP was less than it was in 2011.

(ii) Economic policy

Economic policy in Israel had an expansionary effect on the economy this year. The Bank of Israel continued to reduce the interest rate and real short-term yields fell. The government increased its salary expenditures and its expenditure on social services. Meanwhile, tax revenues fell even more than expected as a result of automatic stabilizers, since real wages remained unchanged.

Both monetary policy and fiscal policy had expansionary effects on the economy this year.

Monetary policy contributed to the growth in GDP, as the low monetary interest rates in Israel and worldwide keep real short-term yields low, supporting domestic demand. The reductions in the Bank of Israel interest rate this last year have also provided support for tradable industries by reducing the interest rate gap and thus contributing to the depreciation of the real exchange rate.

The government cancelled the tax rate reduction program at the beginning of 2012 and, at a later stage, raised tax rates to help cover the budget deficit that has developed and to deal with the expected budget problems in coming years. The deficit deviated from its target this year primarily because the rate of growth in tax revenues slowed to below the forecast. The expectation of budget problems in coming years is based on the government's difficulty in controlling its expenditures. This is the result of socioeconomic conditions and the protest in the summer of 2011 (and the Report of the Committee for Social and Economic Change that followed in its wake), which led to an increase in government expenditure on social services. These were in addition to various wage agreements and other budget commitments that the government took on.

A calculation based on research done by Mazar (2011) (see Box 6.1) shows that fiscal policy was expansionary this year and contributed 0.2 percent to the growth in GDP. Nonetheless, the positive contribution of fiscal policy to growth during the past year must be viewed in a wider context: fiscal policy, and in particular the government deficit, may have negative long-term effects on economic growth and on the balance of payments.

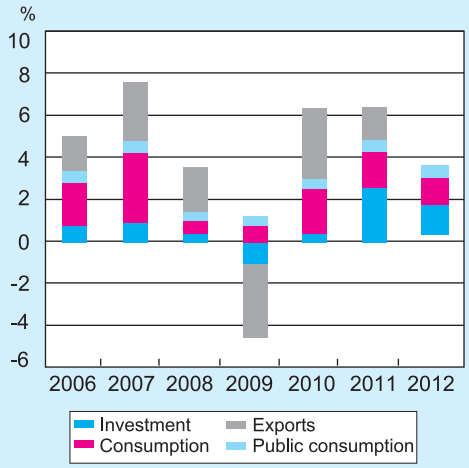
2. SUPPLY, DEMAND, AND EQUILIBRIUM

a. Aggregate demand: Uses

The moderation of exports made a marked contribution to the decline in the growth rate of uses, similar to last year. The contribution of investment to the growth in uses decreased sharply only this year.

Despite the domestic factors that contributed to the weakening of uses, the global crisis had a dominant influence again this year. The crisis affected uses in two stages: The first stage occurred during the second quarter of 2011 when the rate of growth in exports slowed in response to weaker demand abroad (Table 2.3). The second stage occurred later on that year and continued during this year with an additional slowing in exports, the lack of growth in the consumption of durables and following that in investment in fixed assets as well. An examination of the annual contribution of each one of the uses to the overall growth in uses (Figure 2.5) shows that the contribution of exports dropped significantly already last year, which is consistent with the developments described above; however, the contribution of exports this year, too, went a long way in explaining the drop in the rate of growth in uses—it was almost zero. The contribution of investment to the growth in uses decreased in size this year, since the major decline in its rate of growth occurred only this year. It is possible that domestic factors also contributed to this situation, including the increase in the economy's risk premium as a result of the geopolitical tension and the slowing of the previously rapid growth in investment in residential construction.

Figure 2.5
Contribution of the various uses, 2006-12



SOURCE: Based on Central Bureau of Statistics data.

Private consumption

Delaying the purchase of durable goods in light of the worsening economic situation, helps individuals smooth their current consumption of goods and services, which grew this year at a rate similar to last year.

The growth rate of private consumption, and in particular the consumption of durables, leveled off somewhat, while current consumption grew a rate similar to that of the previous year. This behavior was expected in view of the slower rate of growth. Thus, individuals decided to delay the purchase of durable goods as a result of the worsening economic situation. The timing of purchases helps individuals smooth their current consumption of goods and services, which is naturally less sensitive to the business cycle.

Even though the consumption of durables declined during the past year, its share of consumption stood at 10.5 percent, which is high relative to past years and similar

to its share during the previous two years. As explained in greater detail in Section 1.a and as can be seen in Figure 2.2, the relative stability in the share of durables consumption was partly the result of the stability in capital markets in Israel and abroad, despite the negative background conditions abroad. In addition, the increase in home prices in recent years has increased the wealth of homeowners and has also contributed to the increased consumption of durables. Kahn and Ribon[4] (forthcoming) show that the increase in home prices during the period 2009–11 contributed to the increased expenditure on private consumption by homeowners, while in previous years it had less of a contribution. Although the increase in rents reduced the consumption of renters, they show that overall the housing market contributed to the expansion of private consumption in recent years. Finally, it is possible that the increase in home purchases in recent years contributed to the increased purchases of durable goods in order to furnish those homes.

In contrast to the drop in durables consumption, the rate of growth in current consumption—though it was less than the average for the last two years—remained stable and even accelerated somewhat relative to last year. This stability is not surprising, particularly in view of the fact that private disposable income (from all sources) rose this year at a faster rate than last year, despite the reduced rate of growth in GDP. One of the reasons for this is the increase in the rate of return on capital since the tax rates on income from capital are lower than the tax rates on income from work.

Table 2.2
Sources and Uses, 1996–2012

(annual rates of change)

	1996–2008	2009	2010	2011	2012
GDP	4.0	1.1	5.0	4.6	3.1
of which: Business sector product	4.4	0.5	5.4	5.1	3.1
Imports	5.1	-13.9	12.5	11.1	3.4
of which: Imports excluding diamonds	5.7	-12.2	9.4	9.0	6.9
Total sources	4.3	-3.4	7.0	6.4	3.2
Exports	7.4	-12.3	13.5	5.5	0.1
of which: Exports excluding diamonds	9.0	-9.9	10.8	4.1	4.2
Goods	7.0	-12.4	16.0	5.6	-2.4
Services	8.7	-12.2	8.0	5.2	6.0
Gross domestic investment	1.9	-8.1	3.8	23.5	11.0
of which: Investment in fixed assets	1.8	-3.1	12.2	16.0	3.6
Private consumption	4.2	1.9	5.3	3.8	2.7
of which: Current consumption	4.1	2.9	4.6	3.2	3.3
Durables	5.5	-6.5	10.9	12.5	-4.5
Public consumption	2.3	2.6	2.9	2.9	3.4
Domestic uses	3.2	0.6	4.3	6.6	4.2

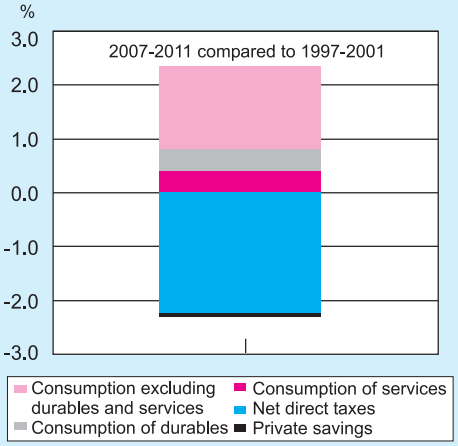
SOURCE: Based on Central Bureau of Statistics data.

[4] Kahn, Miki, and Sigal Ribon, "The Effect of Home and Rental Prices on Private Consumption: A Micro Data Analysis", to be published in the near future as a Discussion Paper of the Research Department of the Bank of Israel.

The increase in disposable income during the past year was directed to an increased savings rate. It appears that this increase was primarily the result of precautionary motives, based on fears of a worsening of the crisis in Israel and worldwide. Private savings also grew in 2002 and 2009, years in which there were fears of a continuing recession.

The cancellation of the tax rate reduction program at the end of last year and the raising of tax rates that was decided on in August of this year, ended a period during which fiscal policy contributed to the increase in private disposable income but, at the same time, also reduced the scope of public services provided to citizens.[5] It is interesting to examine how consumption and savings reacted to these changes in fiscal policy. Figure 2.6 can be used to estimate the effect of the changes on individuals'

Figure 2.6
Change in Private Income Targets as a Percentage Thereof



SOURCE: Based on Central Bureau of Statistics data.

Table 2.3
Developments During the Year, 2011 and 2012
(seasonally adjusted, rate of change over previous quarter, annual terms)

	2011				2012			
	I	II	III	IV	I	II	III	IV
GDP	4.6	3.5	3.2	3.1	2.6	2.8	2.7	2.4
of which: Business sector product	6.4	2.4	3.8	3.0	2.6	3.2	2.9	2.8
Imports	19.8	12.0	-2.3	4.5	37.7	-13.3	-13.5	-16.0
of which: Imports excluding diamonds	13.6	4.3	7.3	4.4	47.5	-10.0	-9.5	-16.2
Total sources	6.9	3.7	4.3	3.5	13.6	-1.1	-0.9	-3.0
Exports	6.3	4.0	-8.8	0.9	-0.9	18.2	-11.6	-9.7
of which: Exports excluding diamonds	17.5	5.1	-7.2	-4.4	-5.1	18.8	-13.3	-11.2
Goods	-7.3	-0.6	-7.9	7.8	15.7	27.9	-17.8	-5.5
Services	9.1	-3.2	-2.4	-0.7	8.0	27.9	-9.3	-12.0
Gross domestic investment	59.5	24.8	26.1	8.3	79.3	-38.7	3.3	-4.1
of which: Investment in fixed assets	18.7	7.3	20.5	13.9	-0.9	-1.9	-3.9	-11.4
Private consumption	5.4	-1.5	3.8	0.5	6.3	1.8	1.2	1.2
of which: Current consumption	2.0	2.2	3.4	1.6	6.1	2.2	3.2	1.8
Durables	50.1	-32.2	3.9	-11.9	17.0	-6.1	-19.5	-3.3
Public consumption	-2.2	4.7	3.7	6.6	1.8	0.5	1.2	5.6
Domestic uses	10.2	5.0	7.1	2.6	16.2	-7.3	0.7	1.0

SOURCE: Based on Central Bureau of Statistics data.

[5] Civilian expenditures without transfer payments fell by about 1.5 percent of GDP during this period. See, for example, Figure 6.1 in the Bank of Israel Annual Report for 2011. It should be mentioned that defense expenditures were cut by a similar amount.

consumption and savings patterns. The graph relates to the weights of the various components and presents the differences between the five years that represent the earlier period of changes and the period that preceded it. The graph shows that the reduction in taxes was directed primarily to current consumption of goods and a small portion (but corresponding to its share of consumption) was directed to the purchase of durable goods. A small portion of the rate of change, which corresponds to the share of services in consumption, was directed to the purchase of services, and the question can be asked whether they grew sufficiently in order to compensate for the reduction in the scope of public services.[6] All of the decrease in the proportion of direct taxes within income was directed to consumption while the rate of savings within income remained unchanged.

A long-term assessment shows that growth in consumption of private services was smaller than the decline in the scope of public services that accompanied the decrease in taxes and public expenditures.

Exports

The growth rate of exports slowed this year, simultaneously with the worsening of the debt crisis in the EU and following the negative turnaround in the second quarter of 2011. In order to understand the contribution of weaker demand in the EU to the slower rate of growth of exports and GDP in Israel, we calculated to what extent exports to the EU contributed to the growth in GDP during two periods: prior to the downturn, i.e., the first six months of 2011, and after the downturn, i.e., the first six months of 2012.[7] The analysis shows that following the downturn, the drop in exports to the EU made a negative contribution of about 0.7 percentage points to the 1.8 percentage point slowdown in the growth of GDP. This is a significant contribution considering that exports to the EU account for about one-quarter of total exports and 8 percent of GDP. This supports the view that the slowdown in demand in Europe played a leading part in the slowdown in Israel's exports and in GDP starting in mid-2011. Added to this is the indirect effect of the slowdown in exports, which operates through inputs that are provided by certain industries to the export-oriented industries (for further discussion, see the section describing the various industries).

The slowdown in demand in Europe led to a slowdown in exports and in Israeli GDP starting in the middle of 2011.

Goods exports declined consistently in most industries this year. This picture was blurred by the fluctuations in total exports due to the sharp rise in Intel's exports with the opening of its new factory in the second quarter. Services exports increased significantly due to the increase in the export of high tech services. This type of service has a high value added and in some cases Israel's competitors offer only partial substitutes. Thus, the development of exports originating from this industry does not necessarily correspond to changes in global and domestic background conditions.

Israel's exports as a share of GDP rose continuously during years in which the economy grew at high rates, such as 2004–08. With the onset of the global crisis, at

6 This question calls for further research: Did the consumption of private services not grow enough to compensate for the erosion of public services or does the private sector provide them with greater efficiency?

7 The OECD conducted the same analysis for other countries and it appears that the negative effect of the crisis in the EU on the exports of countries to this destination is similar, on average, to the effect on Israel. See OECD Economic Outlook 2012/2, OECD, p. 16.

the end of 2008, the share of exports in GDP declined sharply. This drop has only been partially offset since then, while the share of global trade within global GDP has returned to its pre-crisis level (although it has not returned to the trend line that characterized it prior to the crisis). The source of this difference is not the weakness in the tradable goods industries in Israel but rather the relative resilience of domestic demand. Thus, the proportion of Israeli exports in global trade in 2012 (0.41 percent) is identical to what it was in 2007. This occurred at a time when the trade of advanced economies as a percentage of global trade dropped significantly, and there was a shift to the developing markets. The advanced economies, other than the US and countries in the EU, behaved like Israel in this context, since they also did not suffer directly from the crisis.

In contrast with most advanced economies, Israel maintained its share of global trade, *inter alia* due to the fact that Israeli exporters succeeded in increasing their market share in Asia.

As described in detail in Chapter 7 (The Balance of Payments), Israel maintained its share of world trade, thanks in part to the fact that exporters exploited the increase in the trade of the Asian countries during this period and were able to increase the market share of Israeli exports there. In addition, the export of high tech services (an industry that exploits Israel's unique relative advantages) grew significantly during the past two years. The relatively moderate effect on Israeli exports reflects the fact that the current global crisis is centered on the financial sector rather than a sector that is more closely connected to economic activity in Israel. This is in contrast to, for example, the crisis in the technology sector during 2001–03.

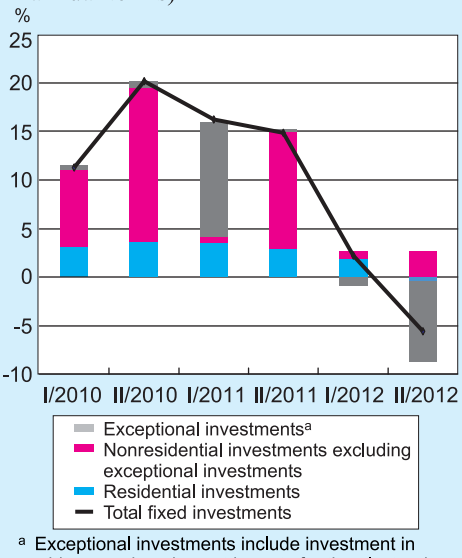
Investment

The rate of growth of investment declined due to the slowdown in growth rates of investment in principal industries and in residential construction.

Investment in fixed assets reacted with a lag to the drop in the rate of growth in the middle of 2011. Only at the beginning of this year did its rate of growth decline, in particular due to the slower rate of growth in business fixed investment (Figure 2.7). In addition, while the rate of growth in investment in residential construction contributed 4 percentage points to the growth in investment in fixed assets in 2011, in 2012 it contributed less than 2 percentage points. This major drop relative to the previous year, which began in the second half of this year, was a result of the drop-off in investment due to the near completion of the Intel factory.

Despite the slower rate of growth, investment as a percentage of GDP

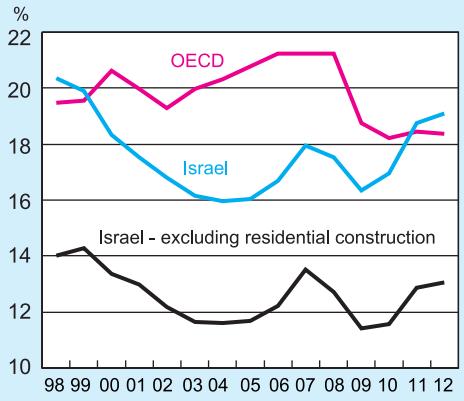
Figure 2.7
Contribution of the Components to the Increase in Fixed Investment, 2010-12
(half-yearly rates of change in annual terms)



[a] Exceptional investments include investment in machinery and equipment imports for the electronic components industry and Intel, and for the mining and manufacturing industry, including the gas reserves.
SOURCE: Based on Central Bureau of Statistics data.

remained high (Figure 2.8). The proportion of investment in fixed assets, which includes investment in residential construction, rose slightly and was higher than it was in 2007 and 2008. The proportion of investment (net of residential construction, which has only a weak link to the general business cycle) is slightly lower and it appears to be more highly correlated with the location of the economy along the business cycle.

Figure 2.8
Investment in Fixed Assets as a Percentage of GDP, 1998-2012



SOURCE: Based on Central Bureau of Statistics and OECD.Stat data.

It is possible that the weakness in investment in physical capital was partly the result of the geopolitical tension. There are signs that this tension led to an excessive drop in stock market indices and to an increase in the spreads on corporate bonds during part of the year. This response reflects the concern that existed regarding the effect on business activity if any of the security risks in the region are realized. It is possible that these concerns trickled down to investment in physical capital, although at this stage it is difficult to identify such a response in the data.

Public consumption

Public consumption grew this year at a more rapid rate than GDP and at a faster rate than its growth in the past. This was due to the significant increase in government acquisitions and the increase in its labor input. Public consumption contributed 0.7 percent to the rate of growth in uses compared to 0.5 percent last year. The proportion of public sector labor input (particularly its civilian portion) within the economy's total labor input rose slightly this year, at the expense of the proportion of the business sector. The rapid growth in the employment component of public consumption, i.e., public sector output, contributed more to the rate of growth in total uses than in the past and this can be attributed to the weakness in the business sector.

b. Aggregate supply: Sources

Imports absorbed most of the moderation in domestic demand that took place this year. The GDP growth rate slowed only somewhat during this period.

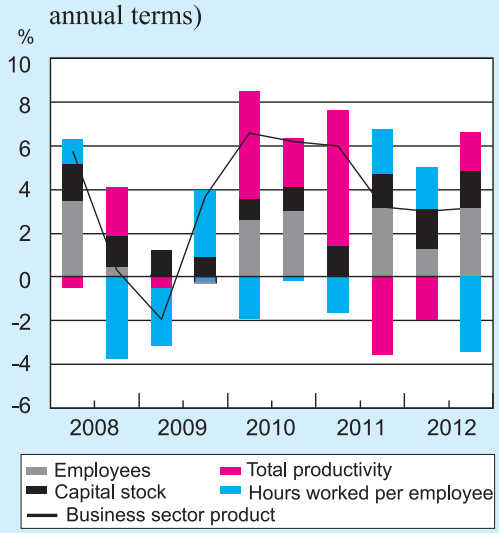
The first stage of the economic slowdown was manifested in a lower rate of growth in GDP during the second quarter of 2011, which was a response to the weakness in global demand and in exports. The second stage began at the end of last year and was manifested in a drop in imports, and since then imports have absorbed most of the fluctuations in domestic demand. The rate of growth in GDP slowed only slightly during this period.

GDP

The rate of increase in potential output accelerated this year.

The supply of labor and the capital stock of industries increased this year at rates that do not appear to be consistent with the location of the economy along the business cycle. Thus, the beginning-of-year stock of capital in the business sector grew at a high rate relative to past years, which was a result of the high level of investment in previous years as well as the fact that investment reacted with a lag to the renewed slowdown in economic activity. In the labor market, the long term upward trend in the rate of participation continued, despite the downturn in the business cycle. These two sources operated on the supply side and led to an increase in potential output.

Figure 2.9
The Sources of Growth of Business Sector Product, 2008-12
(half-yearly rates of change in annual terms)



SOURCE: Based on Central Bureau of Statistics data.

Sources reacted to the weakness in demand primarily through the reduced rate of capital utilization. There were noticeable signs of a slowdown in the labor market, primarily through the price of labor, which is a manifestation of the operation of adjustment mechanisms that are characteristic of a flexible labor market.

Sources reacted to the weakness in demand primarily through the reduced rate of utilization of machinery and equipment, in particular against the background of the accelerated growth in the stock of physical capital. The lower rate of utilization reflected, among other things, a cyclical drop in total productivity during the past two years. The average number of hours worked per employee increased at the beginning of the year and fell subsequently, so that on average it remained unchanged relative to the previous year. Due to the increase in the number of employed persons, the quantity of labor input continued to rise and unemployment remained low. The labor market reacted therefore to the economic slowdown primarily through the price of labor. Thus, the nominal return per hour of work rose moderately despite the marked increase in output per hour worked. Labor cost per unit of output therefore fell, as it did in the previous year. This is a manifestation of, among other things, the operation of adjustment mechanisms that are characteristic of a flexible labor market. As a result of this flexibility, employment is last to be affected and the effect is limited. This can also be seen in the data for 2008 and 2009. For further discussion of this issue and the developments in the labor market, see Chapter 5.

The factors accounting for the economic slowdown during the last 18 months include the reduced rate of growth in the construction industry, the annual growth rate of which dropped from 9 percent during 2010 and 2011 to 4.3 this year, primarily as a result of the lack of building permits. (The section on construction later on this chapter provides further details of the developments in this industry.) However, if one

looks beyond the last 18 months, it appears that the acceleration in construction—aan industry in which activity is not correlated with the general business cycle—goes a long way in explaining the relative stability that has been the halolmark of Israel's recent economic growth.

As a result of the global crisis, domestically oriented industries' share of GDP increased.

As a result of the global crisis and the weakness in Israel's exports in recent years, the weight of domestically oriented industries in GDP (such as construction and trades and services) has risen, at the expense of export-oriented industries, i.e., manufacturing.[8] Thus, the weight of the construction industry grew from 7.5 to 8.5 percent; that of the trades and services industry rose from 58 to 59 percent; and that of manufacturing fell from 21.5 to 20 percent. As described above, the weakness in the export industries is not disproportionate and therefore it is reasonable to assume that this change is not related to a structural process that the economy is undergoing but rather to global developments and the countercyclical policies adopted by the government and the Bank of Israel in response to them.

The domestically oriented industries, whose weight in economic activity has increased, are characterized by low labor productivity relative to manufacturing. Thus, the productivity in both construction and trades and services is 20 percent lower than in manufacturing. Therefore, the shift of activity to these industries is liable to result in a slower rate of growth in total labor productivity. Nonetheless, a calculation we carried out indicates that, at this stage, the effect is negligible.

Notwithstanding the above, if the change in the composition of the economy continues—as a result of the continuing global crisis beyond what is currently expected—it is likely to amplify the adverse effect on labor productivity in the business sector if it is not accompanied by increased productivity in construction and

Table 2.4
Supply of Business Sector Product, 1999–2012

(Annual rate of change)

	1999–2001	2002–03	2004–08	2009	2010	2011	2012
Business sector product	4.2	0.2	5.9	4.4	5.4	5.1	3.1
Gross capital stock	6.4	4.1	3.0	4.5	3.0	3.7	5.2
Labor input	2.3	0.3	3.4	4.4	2.6	3.3	3.8
Total productivity	0.5	-1.3	2.6	0.0	2.6	1.7	-1.0
Labor force participation rate				62.1	62.6	62.6	63.5
Nominal product per man-hour	4.8	1.7	3.3	1.2	1.8	3.7	3.4
Nominal return per man-hour	4.1	-0.9	3.5	2.2	4.3	2.8	1.1
Unit labor costs	-1.6	-2.6	0.2	1.0	2.4	-0.9	-2.3
Rate of return to labor in business sector (percent)	72.3	71.4	68.8	70.7	69.3	68.6	67.1
Nominal declared Bank of Israel interest rate	9.1	6.9	4.1	3.5	1.8	2.8	2.1

SOURCE: Based on Central Bureau of Statistics data.

[8] See the analysis in Chapter 2 of the Bank of Israel Annual Report for 2011, p. 50.

in trades and services. In addition, the ongoing stagnation in the tradable sector is likely to adversely affect the assimilation of technology, since Israel's economy is small and open and it imports technological improvements, and as a result this may adversely affect the accumulation of human capital. This stagnation will also likely affect the accumulation of physical capital. Thus, the proportion of manufacturing in industrial investment fell from 24.5 percent in 2007 to 21 percent this year. Box 2.1 analyzes labor productivity from a long-term perspective.

Imports

While the rate of growth in GDP slowed only somewhat during the year, imports absorbed the majority of the slowdown in domestic demand, as already mentioned, since the slowdown was focused on import-intensive uses—business fixed investment and consumption of durables. It is reasonable to assume that the real depreciation in the exchange rate also contributed to the moderate average rate of growth in imports relative to last year and the decrease during the course of this year. This is the mirror image of developments prior to the downturn when imports grew sharply in response to the rapid growth in domestic demand.[9] Also contributing to the fluctuations in imports was the investment by Intel in imported machinery and equipment for its new factory.

c. Equilibrium: the output gap and the real exchange rate

As became clear from the review of international developments and the analysis in the section on exports, the deterioration in the debt crisis in Europe was the main external factor affecting the Israeli economy this year. Exports responded quickly (even prior to the middle of last year) to the slowdown in global demand while domestic demand reacted with a lag and weakened only during the course of this year. The weakening of demand was also the result of the deterioration in some of the domestic background conditions, which was offset to some extent by counter-cyclical policies. On the sources side, the economy's productive capacity expanded. Thus, the stock of physical capital grew at a high rate relative to the past, thanks to the major increase in investment, as did the supply of labor, thanks to the continuing increase in the rate of participation. The combination of supply and demand factors widened Israel's output gap, which was manifested in a drop in the utilization of physical capital, while the number of employees and labor input in fact continued to grow, thus leaving unemployment relatively unchanged.

Since the factors behind the recent slowdown in exports originate in the crisis being experienced by some of the developed countries and since they affect other countries as well, they have the potential to bring about a cyclical appreciation in the real exchange rate, since Israel's rate of growth is higher than that of other countries. The movement in the real exchange rate in recent years, against the background of the

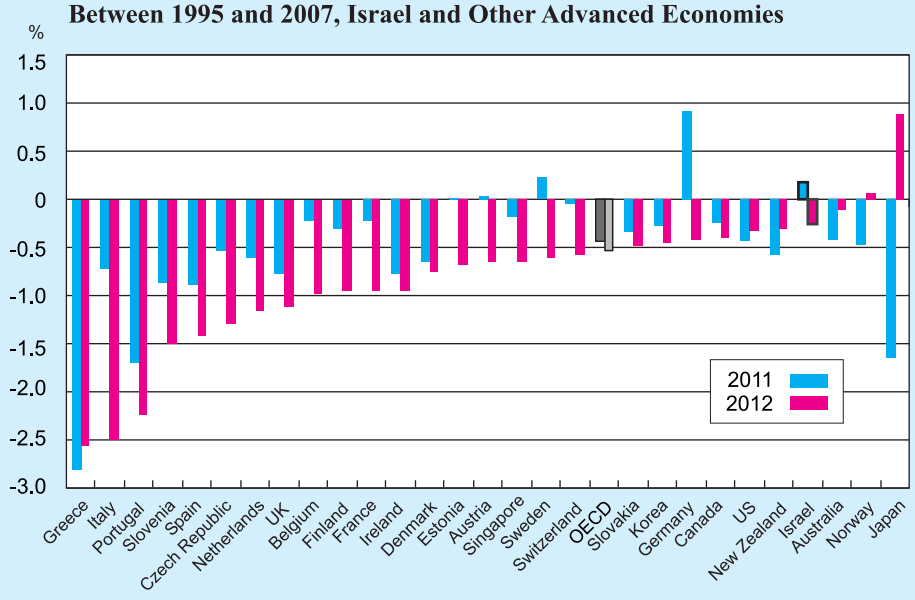
[9] For further discussion of imports, see Chapter 7: The Balance of Payments.

global crises, is consistent with this mechanism and it has appreciated significantly relative to its level at the beginning of 2008. However, it is liable to develop in a different manner in certain cases due to supply factors, differences in the timing of the effect of these crises on domestic demand and policy, the short-term behavior of investors, etc.

This phenomenon characterized most of the past year. Thus, domestic uses in Israel reacted with a lag to the crisis abroad and as a result, between the last quarter of 2011 and the last quarter of 2012, the rate of growth in domestic uses and GDP in Israel declined more rapidly than in other developed countries. The rates of growth in other

A combination of supply and demand factors expanded the output gap in Israel. This expansion took place later than in other advanced economies, which contributed to the fact that there was a real depreciation of the shekel during most of the year.

Figure 2.10
The Gap Between Growth in the Past Two Years and Average Growth Between 1995 and 2007, Israel and Other Advanced Economies

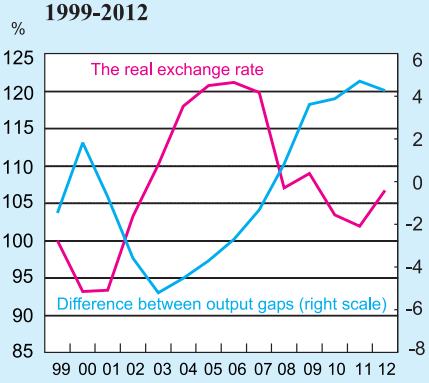


SOURCE: Based on Central Bureau of Statistics and OECD.stat data.

countries fell sharply at an earlier stage when Israel was among the few countries characterized by above average long-term growth (Figure 2.10) and a rapid expansion of domestic demand. The depreciation that began in the last quarter of 2011 reflected, in addition to the effect of domestic background conditions, the delayed "adjustment" of demand in Israel to the global slowdown. This "adjustment" occurred through, among other channels, monetary policy. Thus, the Bank of Israel's reduction of the interest rate narrowed the positive gap with the other developed countries. Together with other factors, this led to an outflow of foreign capital from the economy which, in turn, contributed to the appreciation of both the nominal and real exchange rates (Figure 2.11). During the last quarter of the year, the real exchange rate appreciated, in line with its trend during most of the previous years.

The security situation was one of the domestic background conditions that worked in the direction of depreciation in the real exchange rate. The growing concern regarding political and security developments in the region apparently contributed to the weakening in demand and the widening of the output gap. It is reasonable to assume that this also occurred through the leveling off of growth in both the quantity of foreign direct investment coming into Israel and foreign investment in Israeli shares and bonds. During part of the period, the cumulative effect of restrictions imposed by the Ministry of Finance and its cancellation of exemptions on nonresidents' short-term investments in Israel also worked in this direction.[10]

Figure 2.11
The Difference between the Output Gap in Israel and that of the OECD Countries, and the Real Exchange Rate using the PPP Coefficient, 1999-2012



SOURCE: Based on Central Bureau of Statistics and OECD.Stat data.

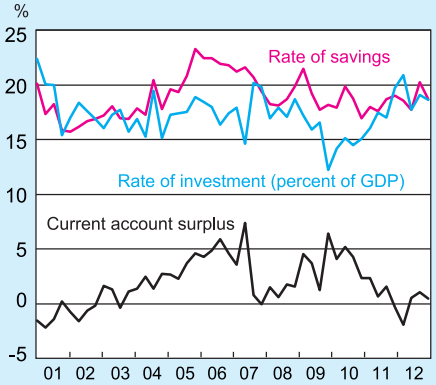
3. SAVINGS, INVESTMENT AND THE CURRENT ACCOUNT

The current account surplus contracted this year, which was a continuation of last year's trend, and a small deficit appeared. There were three factors behind this development: The main exogenous factor was the increase in the prices of fuels and the fact that Israel was forced to increase its import of fuels due to a temporary shortage in natural gas.

The decline in the current account surplus was the result of the fact that global demand moderated and fuel imports recently increased, such that in the past four years, the public sector moved to a deficit.

Second, domestic uses grew faster than in other developed countries. Business fixed investment reacted only moderately and with a lag to the downturn in the business cycle and the increase in investment in residential construction leveled off only in mid-year. Against this background of strong domestic demand, imports were at a relatively high level.

Figure 2.12
Rate of Savings, Rate of Investment and the Current Account Surplus, 2001-12
(percent of national income, seasonally adjusted)



SOURCE: Based on Central Bureau of Statistics and OECD.Stat data.

[10] For further discussion of this subject and other subjects related to the real exchange rate, see Chapter 7: The Balance of Payments.

Exports, however, are directly affected by the global economy and thus weakened in parallel with it. The weak global demand and the relative strength of domestic demand could be seen in the shrinking capital account surplus during the last 18 months.

The third factor involves the savings side and is related to policy. In 2008, national savings fell when the public sector shifted from a situation of balance (and sometimes even positive savings) during the period from 2005–08 to negative savings during the period from 2009–12. Mazar (2012) found that such an increase in the government deficit leads to a larger deficit in the current account by increasing civilian imports. It is possible then that a fundamental cause has been created for a deficit in the current account and it is liable to worsen if the government deficit is maintained.

Table 2.5
Savings, Investment and the Current Account as a Share of National Income, 2001–12

(Percent)

	Savings			Investment				
					Principal			Net Current
	Total	Public	Private	Total	Inventory	Industries	Housing	Account
2001–04	17.3	-2.0	19.3	17.5	1.1	11.9	4.5	-0.1
2005–08	20.5	0.8	19.7	17.7	1.2	12.1	4.4	2.8
2009–10	18.6	-2.0	20.6	14.9	-1.5	11.3	5.1	3.7
2011	18.2	-1.0	19.2	17.4	-1.1	12.7	5.8	0.8
2012	18.3	-2.0	20.3	19.2	0.1	13.0	6.0	-0.9

SOURCE: Based on Central Bureau of Statistics data.

Box 2.1

Labor Productivity in Israel from an International Perspective

Labor productivity is defined as total output per actual work hour. It measures the production capacity of the economy, given the labor input at its disposal. From a long-term viewpoint, the level of productivity and the changes in it depend on a number of factors, such the human capital in the economy, the stock of physical capital, the level of technology, and structural factors that affect the efficiency with which the production factors are utilized. An international comparison of labor productivity in 2011 places Israel in the bottom third of the developed countries (Figure 1). Productivity in Israel is 37 percent lower than that of the G7 countries, and 24 percent lower than that of all the OECD countries. Productivity in Israel more closely resembles that of countries like New Zealand, Greece, and Portugal, and the productivity of a number of Eastern European countries.

An accepted economic theory, called “conditional convergence,” predicts that the world’s countries will converge over time to a productivity path, and the remaining differences between them in the long term will reflect differences in technology and in physical and human capital intensity. Once convergence has taken place, labor productivity will grow at a uniform rate, but

Table 1: International Comparison of Investment Indices and Industry Structure, by Productivity Growth Rate

	Productivity per man-hour in 2011	Average annual growth in productivity, 1995-2011	Ratio of investment in fixed assets to GDP (2000-11 average)	Calculated return on capital (2000-10 average)	Manufacturing as a share of value added (2000-11 average)
			(percent)		
Israel	33.9	1.20	17	25	18
OECD[a]	44.6	1.50	22	23	22
The 11 countries with large growth in productivity[b]	33.1	3.30	24	26	27
The 12 countries with medium growth in productivity[c]	49	1.70	20	21	21
The 11 countries with low growth in productivity[d]	50.2	0.90	21	25	22

[a] For the level of productivity, its growth and the share of manufacturing: Weighted aggregate in PPP terms. For the investment ratio and return on capital: Simple average of the OECD countries.

[b] The average of the productivity growth rate is higher than 2 percent per year: Chile, Estonia, Hungary, Iceland, Ireland, South Korea, Poland, Slovakia, Slovenia, Turkey.

[c] The average of the productivity growth rate is between 1.25 percent and 2 percent per year: Australia, Finland, France, Germany, Greece, Japan, Netherlands, Portugal, Sweden, US, UK.

[d] The average of the productivity growth rate is below 1.25 percent per year: Belgium, Canada, Denmark, Israel, Italy, Luxembourg, Mexico, New Zealand, Norway, Spain and Switzerland.

SOURCE: Based on OECD data.

while convergence is taking place, countries with lower initial productivity will experience faster than average growth.

Figure 2 represents the OECD countries; it displays productivity per work hour in 1995, compared with the average productivity growth rate during the next 16 years. It can be seen that the negative slope in the segment between $20 and $45 bears out the prediction concerning the convergence process, while the horizontal slope in the segment greater than $45 reflects wealthy countries that have converged to their long-term productivity path.[1] It is disappointing to see that Israel is an exception in the diagram: the growth in its productivity during these years was low, compared with its initial productivity level in 1995, and was also lower than the OECD average, a process that reflects divergence. The question therefore arises why labor productivity in Israel is relatively low, and more importantly, why it is not converging to higher levels. A number of possible explanations for this phenomenon will be presented below.

Labor utilization: The average number of work hours per employee in Israel (37.1 per week) is higher than the OECD average (33.6 hours per week). An examination of the connection between hours per employee and productivity per labor hour in the OECD countries yields a clear negative correlation (-0.85). This finding is consistent with the assumption that efficiency decreases when the amount of

[1] We note that convergence is also evident in longer-term data from the 1980s, but the trend in the 21st century shifted to divergence.

Table 2: Productivity and Rate of Investment by Industry, Israel and the OECD

	The ratio between industry productivity and the economy's productivity (2007)		The average change in productivity between 1996 and 2007		Investments as a share of value added	
	Israel	OECD	Israel	OECD	Israel	OECD
Total business	1.00	1.00	1.9	2.1	20.4	26.1
Agriculture	0.59	0.59	4.5	3.1	24.7	40.2
Manufacturing	1.08	1.07	3.5	3.9	30.1	19.8
Electricity and water	2.74	3.72	6.4	2.7	36.5	52.4
Construction	0.63	0.76	-0.6	0.1	9.4	10.2
Trade and Hospitality services	0.59	0.71	1.9	2.2	8.3	13.6
Financial and busines services	1.76	1.87	0.3	2.2	23.5	39.8

SOURCE: Based on OECD data.

work per employee increases.[2] Although this factor explains some of the gap, it does not explain all of it, because it was found that Israel is also lagging behind and failing to converge in productivity per worker (a figure that does not include work hours).

The stock of physical capital and its industry structure: A larger stock of physical capital means that more can be produced with the help of each worker. It is difficult to compile comparative data for capital stock, but the rate of investment in capital (i.e. the creation of new capital) as a share of output can be assessed. Table 1 displays a number of indices for Israel, for the OECD average, and for the average of countries grouped according to the growth rate in their productivity. As expected, the table indicates that the ratio of investment to GDP is correlated with the growth rate in labor productivity. The table shows that in 2000–11, the investment rate in Israel was 17 percent, lower than the OECD average of 22 percent, and among the lowest in the developed countries. Under standard assumptions for the structure of the aggregate production function for the economy, the low rate of investment in Israel can explain about half of the gap in productivity between Israel and the OECD. It is not likely that structural barriers are preventing the implementation of projects with high returns, since an international assessment of the return on capital shows that return in Israel is slightly higher than for the other developed countries, but does not deviate from the distribution. It is possible that the burden of the security risk and regional geopolitical shocks, as reflected in cycles that are peculiar to Israel, are having a negative impact on the return that can be obtained on investments, and that the investments are accordingly low.

Table 2 relates to Israel and the OECD countries. It portrays the level of productivity, its growth rate, and the weight of investments in value added according to sector. A comparison of investment rates by industry shows that the rate in Israel is lower in all industries other than manufacturing. It is possible that the investment rate in manufacturing is higher than the international rate, despite the security burden and domestic geopolitical fluctuation, because this industry competes with overseas companies due to

[2] This finding is also consistent with reverse causality; in countries where labor productivity is relatively low, employees must work more hours in order to maintain a given standard of living.

its export-intensive nature and its exposure to competition from imports. This competition forces companies to adopt overseas technologies. This is also one of the reasons why the growth rate of labor productivity is higher in manufacturing than in the other industries. However, the weight of the manufacturing industry in Israel—18% of GDP—is about the same as in countries with relatively low productivity growth rates: Spain, Luxembourg, New Zealand, France, and the Netherlands. This factor poses a difficult policy challenge, because transferring production factors to industries with a high productivity growth rate is not enough; it is also necessary at the same time to encourage acquiring the education needed in these industries, such as the engineering professions.[3]

Table 2 also indicates that Israel lags behind in productivity uniformly in all economic industries. Furthermore, growth in productivity in Israel in 1996-2007 was lower than in the OECD in most industries, particularly in construction and in business and financial services. Since productivity in all industries is uniformly lower than the average for developed countries, it is possible that basic factors, such as infrastructure, bureaucracy, and others, are having a uniform negative effect on productivity in all economic industries.

The business environment: Various structural aspects of business activity influence both the rate of convergence in productivity and the long-term productivity level. For example, a higher productivity level is expected in competitive economies, because competition gives firms an incentive for becoming efficient and for acquiring advanced technologies in order to remain in the market.[4] In this context, it should be noted that when the business environment does not balance competition with the safeguarding of patents and copyrights, it fails to facilitate the research and development necessary for growth in technology and productivity.

A report by the Committee on Increasing Competitiveness in the Economy stated that a low level of competition was prevalent in Israel, due to the multiplicity of business groups controlling a very broad range of markets. Kosenko (2007)[5] found that the profitability of companies belonging to business groups was no higher than that of companies that did not belong to such groups, despite the former's easier access to resources. This indicates a low level of efficiency in the allocation of resources. A previous study by the Bank of Israel showed that when the fact that per capita income in Israel is lower than the OECD average is taken into account, the level of prices for private consumption in terms of purchasing power parity (PPP) was higher than in all the other OECD countries. Low productivity may explain the higher prices, but this finding is also consistent with the relatively poor state of competition in Israel. The low level of competition may also explain both the low productivity growth rate and the low rates of investment in doemstically oriented industries. Box 2.2 of this report presents a more up-to-date illustration that bolstering competition in cellular communications increased output, while simultaneously reducing the number of employees—i.e., a rise in productivity.

[3] An inter-ministerial committee examined the shortage of trained personnel in high technology. The report it issued noted that there was a shortage of highly trained personnel in the computer fields.

[4] See Aghion, P. and Howitt, P. (1998), "Endogenous Growth Theory," MIT Press.

[5] See Kosenko, K. (2007), "Evolution of Business Groups in Israel: Their Impact at the Level of the Firm and the Economy, Israel Economic Review 5(2), pp. 55-93.

The business activity environment is also likely to affect labor productivity through bureaucracy, regulation, and legislation. The World Bank's Doing Business Index shows that in comparison with other countries, there is room for improvement in this area in Israel. Aspects in which Israel's inferiority is particularly prominent are its handling of bankruptcies and the extent of contract enforcement. We find that there is a positive connection in OECD countries between their rating in these categories and their productivity. Israel's rating here is consistent with its inferior productivity.

Human capital: It is hard to find evidence in the data that the quality of Israel's labor force is lower than in the rest of the world, or that its growth rate is slow. Actually, Zussman and Friedman (2008)[6] showed that the quality of the labor force in Israel rose between 1987 and 2005, among other things as a result of an increase in the workers' educational level, which contributed to the expansion of the effective labor force.

Other aspects of the labor force, however, relate to its expansion, and are likely to solve part of the productivity puzzle. A clear and unique process has taken place in Israel in recent decades—a rise in the employment rate caused by growth in the labor force participation rate, from 59 percent in the second half of the 1990s to 64 percent in 2012.[7] By definition, new participants in the labor force have little employment experience, which has a negative impact on their productivity in the labor market. By way of illustration, if we assume that the average productivity of those joining the labor force is 75 percent of the rate of those already in the labor force, we see that the increase in the participation rate caused a 0.1 percentage point drop in the annual growth in labor productivity in Israel. Note that a large proportion of the rise in the participation rate resulted from the raising of the retirement age for women aged 50 or older, an age when labor productivity reaches its peak, but then begins to decline on average.[8] For these reasons, it is possible that the increase in the participation rate explains some of the lag in productivity growth. Obviously, however, this does not mean that growth in the labor force is not a desirable process, since it greatly contributes to a rise in per capita GDP in Israel. Furthermore, over the years, after the rapid expansion in the labor force has come to an end, and after the new participants acquire employment experience, this factor will fade away by itself.

In this box, we have listed a number of factors that might explain the lag in labor productivity and its rate of increase in Israel. We mentioned the high number of work hours in Israel, the low rate of investment in industries that are sensitive to domestic demand and are protected against overseas competition, the negative impact on employment experience resulting from growth in the labor force, and the low level of competition characteristic of the business activity environment. Additional research is needed, however, to quantify and clarify these factors in order to indicate the policy measures required to bring productivity in Israel up to the level of the wealthy countries.

[6] Zussman, N. and Friedman, A., "Labor Quality in Israel," Discussion Paper 2008.01, Bank of Israel Research Department.

[7] Box 5.1 in this report addresses the rise in the labor force participation rate according to educational levels. It indicates that the increase occurred simultaneously with an increase in the proportion of well-educated people (who are more inclined to participate in the labor force). It therefore cannot be said that the new people joining the labor force reduced the prevalence of education.

[8] According to the estimates in the study by Zussman and Friedman (2008), wages, which at equilibrium reflect labor productivity, reach a peak after 29 years of "calculated" experience (age minus the duration of military service minus the number of years of education minus 6), meaning shortly after age 50 for those with higher education.

Figure 1
Labor Productivity and GDP per Work Hour, 2011
(in current dollars in terms of PPP)

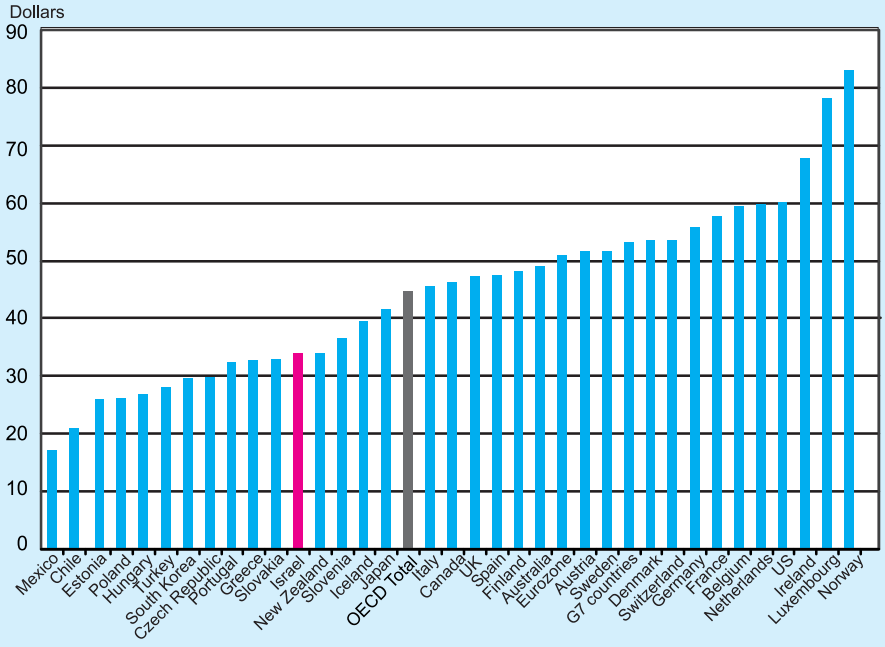
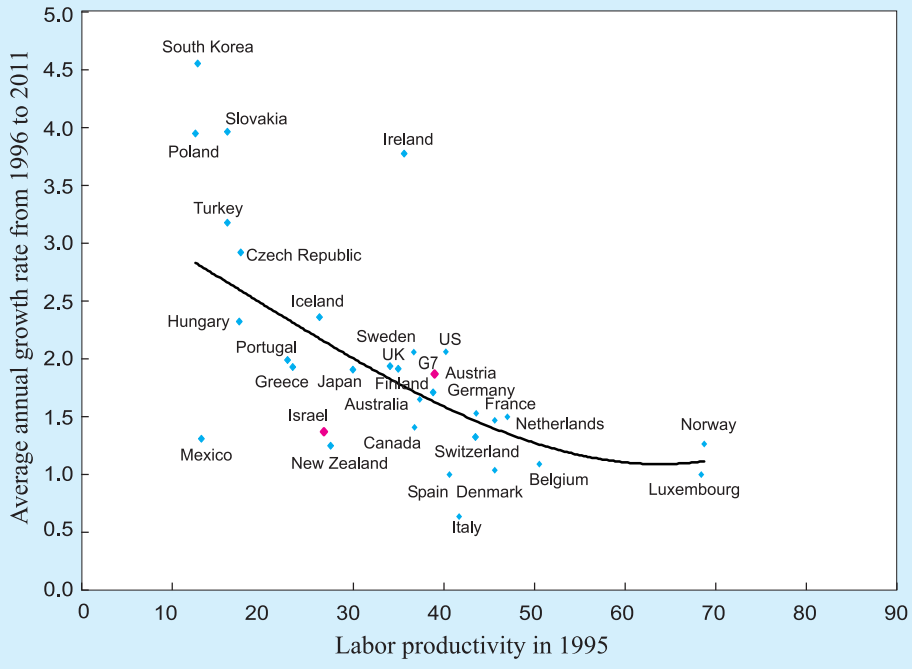


Figure 2
"Conditional Convergence" - Labor Productivity in 1995 and its Growth Rate from 1996 to 2011



4. PRINCIPAL INDUSTRIES

I. Main developments

The following analysis of the economy's industries complements the analysis of the macro data and makes it possible to identify problems in specific industries. These are problems that a macro analysis cannot in some cases identify, and if the correct policy is adopted, then these problems can be solved and the rate of growth may increase.

Economic activity moderated in 2012, primarily due to the weakness in global demand, though also due to somewhat weaker domestic demand, which became more pronounced as the year progressed (Table 2.6).[11] Industrial output grew by 3.1 percent this year, in contrast to 5.1 percent in 2011—a response to the slower growth in demand.

The industries of the economy are exposed to foreign demand through two channels: a direct channel through the export-oriented industries and an indirect channel through the inputs that certain industries provide to export-oriented industries. The summation of these two mechanisms appears in Column 6 of Table 2.7 and is likely to more accurately reflect the exposure of each industry to the global economy since it takes into account both channels. (For further discussion of the exposure to foreign demand, see the framed discussion below.)

The principal industries of the economy are exposed to foreign demand through two channels: a direct channel through the export-oriented industries, and an indirect channel through the inputs that certain industries provide to export-oriented industries.

Table 2.6
Background Conditions for Activity in Industries, 2008–12

(rate of change[a], percent)

						2012	
	2008	2009	2010	2011	2012	First half	Second half
Terms of trade (export prices divided by import prices)	-5.4	11.0	-5.6	-5.3	4.3	8.4	4.8
Real effective exchange rate[b]	-10.7	1.8	-5.1	-1.4	3.7	3.1	4.1
Indicators of demand							
Domestic uses excluding import-intensive components[c]	2.2	2.8	2.9	4.6	5.7	8.5	1.1
Private consumption excluding durables	1.6	2.9	4.6	3.2	3.3	4.0	2.6
Import of goods and services (quantitative) of OECD countries	0.3	-11.9	11.1	4.7	1.0	1.6	
Import of goods (quantitative) of OECD countries	-0.3	-13.8	12.5	4.9	0.0	3.4	

[a] All of the rates of change appear in fixed prices in annual terms. The half-year rates of change are for each half compared to the preceding half.
[b] Real depreciation appears as a positive and real appreciation appears as a negative.
[c] Domestic uses excluding investments in machinery, equipment and transport vehicles, and excluding consumption of durables.
SOURCE: Based on Central Bureau of Statistics and OECD data.

[11] For a discussion of the transmission mechanisms between foreign demand, domestic demand, Israeli exports and domestic uses, see the first section of this chapter.

The total exposure of the economy's industries to foreign demand

The industries of the economy are exposed to foreign demand through two channels: a direct channel through export-oriented industries, and an indirect channel through the inputs that certain industries provide to export-oriented industries. The total exposure to exports, which is discussed here, is likely to more accurately reflect each industry's degree of exposure to the global economy, since it takes into account the effect of both channels. The total exposure to exports shows, for example, that through the indirect mechanism the business services industry has a higher weight in exports than its weight in direct exports only.

Column 5 in Table 2.7 presents the rate of indirect exports, i.e., the extent to which an industry is exposed to exports through it being a supplier of intermediate inputs to export-intensive industries. The rate of indirect exports is calculated using the input-output tables of the Central Bureau of Statistics for 2006.[12] Column 6 presents the total effect of the exposure to the global economy, through both direct exports and the supply of intermediate inputs to the export industries.

Regarding the indirect channel, an industry will receive a maximal exposure rate—indirect exports that account for 100 percent of its sales—if all of its output consists of intermediate inputs to other industries and the output of those other industries is intended for export only. Since the rate of indirect export represents the dependency on export industries and not the direct exports of that industry, an industry's rate of indirect exports will be equal to zero if all of its output goes to end uses. The larger the proportion of an industry's output that is made up of intermediate inputs to other industries and the greater the extent to which those other industries are export-oriented, the higher the rate of indirect exports will be.

In general, the services industries have high rates of indirect export, since a large part of their output is made up of intermediate inputs to the exporting industries. Thus, business services, retailing and wholesaling, and the financial industries have a sizable exposure to the export industries through the services they provide to them. Other business activity industries, which constitute 8 percent of business output and are primarily composed of legal services, accounting services and architectural services, export about 10 percent of their output directly, and another 12 percent indirectly through services they provide to the export industries. Therefore, their overall dependency on exports is not insignificant. Exceptions among the services industries are computer services and R&D services, since they are directly exposed to exports rather than through inputs that they provide to other industries.*

The chemicals industry (not including pharmaceuticals) is an example of an industry with a high level of indirect dependence on the export industries. This industry provides inputs to the pharmaceuticals industry, which exports about 85 percent of its production. Therefore, the output of the chemicals industry (without pharmaceuticals) has a high indirect dependency on the exports of the pharmaceutical industry. The correlation coefficient for the last five years between the annual rates of change in chemicals production (without pharmaceuticals) and the export of pharmaceuticals is 0.81.

* The exposure of an industry to exports through the indirect channel is calculated relative to all of the other industries. Therefore, the rate of indirect export for the economy as a whole is zero.

[12] Published in 2013.

Domestically oriented industries: These include agriculture, electricity and water[13], construction, and personal and other services. These industries supply domestic demand and grew this year by a higher rate than industries dependent on foreign demand (Table 2.7). There were two exceptions: financial services, which grew at a relatively low rate since their output is affected by, among other things,

Domestically oriented industries grew this year by a higher rate than industries dependent on foreign demand.

Table 2.7
Features of the Principal Industries

(percent)

	1	2	3	4	5	4+5=6
	2012	2012	2012	2012	2006	
Industry	The industry's share of industrial product	Rate of change in product[a]	Rate of change in exports	Exports as a share of revenue	Indirect exports as a share of revenue[b]	Total exposure to exports
Domestically oriented industries						
Business education, health and social work services, social, personal and other services	9.9[c]	5.8	-	-	0.4	0.4
Construction and civil engineering	8.3	4.3	-	-	2.5	2.5
Electricity and water	2.6	-11.1	-	-	11.7	11.7
Trade, vehicle repairs and other repairs	11.9[c]	1.1		8.1[f]	7.1	15.2
Banking, insurance and other financial institutions	7.5[c]	1.2	-26.6	7.5[f]	10.2	17.7
Agriculture	2.7	3.2	3.4	19.5	4.5	24.0
Industries that are neither domestically oriented nor export oriented						
Hospitality and food services	2.7[c]	5.7	-8.5	26.0	3.3	29.3
Transport, storage and communications	10.1	5.8	-0.4			
Business services[d]	25.3[c]	4.9	15.0	23.0	7.4	30.4
of which: other business activity	7.9[c]	9.4	-0.1	10.4	11.7	22.1
Export-oriented industries						
Manufacturing (excluding diamonds)	18.8	2.9	4.4	42.0	1.4	43.4
of which: Manufacturing excluding electronic components	16.4	0.8	0.1	39.5	1.3	40.8
Computer services and research and development, including estimates for start-up companies[e]	9.3[c]	14.8	18.3	71.1	9.1	76.3

[a] Where there are no detailed GDP data, we used fixed price sale data.
[b] The way in which the indirect export rate is constructed is described in the Box.
[c] 2011 data.
[d] Business services includes the technological services and research and development industry, whose exposure to foreign demand is high.
[e] A portion of business services.
[f] Indirect exports as a share of revenue is calculated according to input data - 2006 production.
SOURCE: Based on Central Bureau of Statistics data.

[13] Although the output of electricity and water fell by 11.1 percent, this is primarily the result of a change in the mix of inputs, which is recorded as a quantitative change. The revenues of the industry expressed in terms of fixed prices, which neutralizes this change, grew by 7 percent.

the volume of transactions in the capital market, which was low this year[14], and the output of trade services, which grew by only a moderate rate since it includes a large component of private consumption, which grew this year by a rate of only 2.7 percent.

The manufacturing industry, which is the economy's most tradable industry, grew at a higher rate than overall business GDP, but if we exclude the electronic components industry, manufacturing output grew by only 0.8 percent.

Mixed industries that are neither domestically oriented nor export-oriented: These include hotel and catering services and business services. Hotel and catering services grew this year by 5.7 percent, primarily as a result of the increase in domestic demand. This is because the number of nights stayed by Israelis grew by 4 percent while nights stayed by tourists, which depend primarily on the security situation and less on the economic situation in the country of origin[15], fell by 2 percent. The business services industry is exposed to foreign demand both through the direct demand for its services (primarily computer services and R&D) and indirectly through inputs to other industries, some of which are export-oriented.

Export-oriented industries: The manufacturing industry, which is the economy's tradable industry, is responsible for about 65 percent of exports (not including diamonds) and its total exposure to foreign demand is the highest among the industries. Although the industry grew at a higher rate than overall business GDP, one of the contributing factors was the electronic components industry, whose exports grew by 67 percent as a result of the new Intel factory. If we discount the electronic components industry, manufacturing output grew by only 0.8 percent. There is good reason to discount the electronic components industry since its production does not reflect the fundamental growth trend but rather an outlier event.

Growth in the manufacturing and business services industries should be examined from the perspective of the the transition from manufacturing to services industries.

The growth in manufacturing and business services should be examined from the perspective of the long-term trend in developed economies, i.e., the transition from manufacturing to services industries. The trend in Israel has been more gradual than in the OECD countries, due to the high tech industries, whose share in industrial production is higher than the OECD average and whose rate of growth from 2006 to 2012 stood at about 7.9 percent annually, which is far higher than the economy's rate of growth.[16]

II. Developments in selected industries

a. Manufacturing

The output of the manufacturing industry, which accounts for about one-fifth of business output, grew this year by 3.7 percent (Table 2.8). The improvement in the terms of trade, i.e., the ratio of export prices to the prices of imported inputs, and the depreciation in the real effective exchange rate helped to improve the profitability of

[14] See the box in Chapter 4 which analyzes the factors behind the drop in the volume on the Tel Aviv Stock Market.

[15] See Ran Sharabany, "Estimation of the effect of terror on the entry of tourists of various types into Israel", Bank of Israel, 2012, draft.

[16] In 2009, the last year for which there is data that is comparable to the OECD, the proportion of manufacturing in the economy's total output stood at about 15.9 percent, as compared to 15.7 percent on average in the OECD.

Table 2.8
Developments in Industrial Production, Domestic Sales and Sales for Export, 2011 and 2012

(annual change, percent)

			2012[a]	
	2011	2012	First half	Second half
Industrial production	2.0	3.7	1.9	6.6
Industrial production excluding electronic components	2.6	0.8	5.4	-3.2
Exports	0.5	4.4	1.8	17.4
Industrial exports excluding electronic components[b]	0.7	0.1	-6.3	8.7
Domestic sales	3.5	3.0	4.8	-1.2
of which: Low technology	0.6	0.8	1.7	0.7
Medium-low technology	6.3	8.1	11.0	1.3
Medium-high technology	4.2	3.7	4.2	-2.4
High technology	6.2	0.7	5.0	-10.2

[a] Half-year rates of change are for the half year compared with the previous half-year in annual terms.

[b] The data are not seasonally adjusted.

SOURCE: Based on Central Bureau of Statistics data.

manufacturing exports.[17] Thus, these factors offset to some extent the weaker demand abroad for manufacturing output. Industrial production accelerated during the course of the year, as a result of the growth in the production and export of pharmaceuticals and the opening of the Intel factory for electronic components in the second quarter. The opening of Intel's factory makes almost no contribution to the growth of industrial production, beyond the manufacture of electronic components, since of the factory's output, which totaled about NIS 15 billion in 2012, only 3.2 percent consisted of production inputs bought from manufacturers in Israel.[18]

Industrial production accelerated during the year, a result of the acceleration in the production and export of pharmaceuticals, and of the opening of the Intel electronic components plant during the second quarter.

Although the rate of growth in exports was higher than that in domestic sales, if the exports of the electronic components industry are excluded, then the annual rate of growth in domestic sales becomes higher than that of exports, which is the result of strong domestic demand relative to foreign demand. By breaking down the year into two six-month periods, one can see the decline in domestic sales during the second half of the year, which was the result of the lower rate of growth in private consumption and the weakness in industrial investment during the course of the year.

Investment in the manufacturing industry fell this year, although from a long-term perspective it was still at a very high level. The reasons for weak investment during

[17] A detailed analysis of the terms of trade and the real exchange rate can be found in the first section of this chapter and in Chapter 7: The Balance of Payments.

[18] According to the new input-output tables for 2006, the total inputs (not just inputs from the manufacturing industry) acquired in Israel constitute a relatively small proportion of the production of the electronic components industry. Therefore, its effect on the production of the rest of the economy is relatively small.

Investment in the manufacturing industry fell this year, although from a long-term perspective, it was still at a very high level.

the course of the year are related to the completion of the Intel factory. Investment is also expected to be moderate in the coming year, with the completion of investment in the Tamar gas field (since the production of natural gas is part of the mining and quarrying industry which is classified as part of the manufacturing industry according to the old system of classification).[19] Alongside the massive investment in mining and quarrying, as well as in the electronic components industry, there was an increase in investment in much of the manufacturing industry. Accordingly, the growth of 3.8 percent in the stock of capital (not including electronic components and mining and quarrying), along with the very small increase of 0.5 percent in the number of employees in the industry, increased the stock of capital per worker by 3.3 percent.[20]

There was a slight improvement in manufacturing profitability in 2012 compared with the previous year.

The profitability of manufacturing is influenced by output prices, the prices of raw materials, the nominal cost of labor per hour and total productivity. Output prices increased by 5.7 percent this year, a continuation of the 6 percent increase last year. The prices of imported raw materials dropped this year by about 3.5 percent, as a result of weak global demand for them, following an average annual increase of 3.6 percent from 2006 to 2011. These factors increased the industry's profitability. On the other hand, the nominal cost per hour of labor rose this year and total productivity fell by 2.3 percent, as a result of lower utilization. Therefore, overall there was a small improvement in the profitability of manufacturing relative to last year. Thus, the return on capital less scrap[21] rose this year from 13 percent to about 14 percent, after having declined the year before.

Sales in the domestic market constitute slightly less than 60 percent of manufacturing revenue.

(i) Domestic sales by manufacturing industry

Sales in the domestic market constitute slightly less than 60 percent of manufacturing revenues. The domestic demand for manufacturing output has two main components: private consumption of goods and investment in construction and machinery and equipment.

The food industry has increased its domestic sales by 3 percent this year, slightly less than the growth in private consumption of food products.

With regard to the private consumption of goods, it is worth mentioning that the food industry has increased its domestic sales by 3 percent this year, somewhat less than the growth in the private consumption of food products. As a result, the trend towards the displacement of imports was interrupted this year, which is apparently due to the reduction in taxes in the middle of the year on imported food products that have domestically produced substitutes, in accordance with the recommendation of the Trajtenberg Committee to encourage competition in this area. In the clothing

[19] According to the Standard Industrial Classification 1993, mining is classified as part of manufacturing. Next year, the analysis will be carried out according to the new classification, i.e., Classification 2011. According to the new classification, mining will not be classified as part of the manufacturing industry.

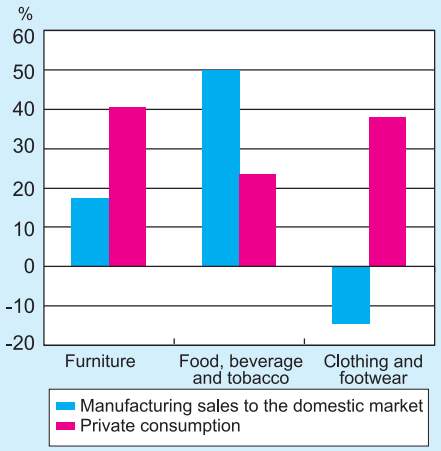
[20] If mining and quarrying and electronics are included, then the stock of capital in manufacturing grew by 5.4 percent and the stock of capital per worker by 5 percent. There is no data on the stock of capital in electronic components alone and therefore we deduct the stock of capital in the whole electronics industry.

[21] The return on capital less scrap as a percentage of the stock of capital.

and footwear industry, there was a continuation of the downward trend in domestic production and the upward trend in the consumption of imported products (Figure 2.13).

It is worth mentioning that with regard to investment in construction and machinery and equipment, the manufacturing industries that provide inputs to the construction industry, i.e., the wood industry, the non-metallic minerals industry and the metal products industry, benefited from the continuing growth in investment in the construction industry, which grew at a rate of 8.2 percent in current prices.

Figure 2.13
Domestic Sales and Private Consumption of Manufactured Products, 2006-12



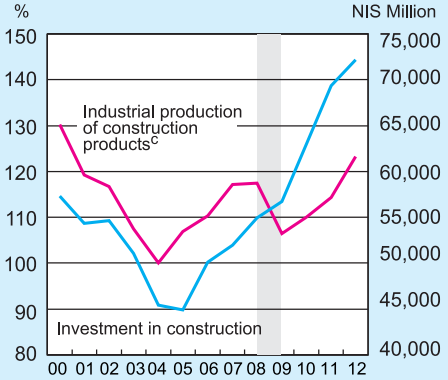
SOURCE: Based on Central Bureau of Statistics data.

The manufacturing industries that provide inputs to the construction industry benefited from the continuing growth in investment in the construction industry.

(ii) Exports of the manufacturing industry

Manufacturing exports constitute over 40 percent of the industry's revenues. Exports grew this year by 4.4 percent; however, if Intel is deducted, then they remained almost unchanged, as was the case for foreign demand. Foreign demand is represented in Table 2.6 by the quantitative import of goods by the OECD countries. Israeli exports remained almost unchanged despite the depreciation in the real exchange rate and the improvement in the terms of trade, i.e., the ratio of export prices to the prices of imported inputs. However, it should be mentioned that the real exchange rate, and the terms of trade, affect exports with a lag.[22] Manufacturing exports were adversely affected since most of them are destined for markets in the advanced economies (Europe and the US), which have been experiencing a severe crisis in recent years.

Figure 2.14
Industrial Production for the Construction Industry[a] and Investment in Construction[b], 2000-12



[a] Including the stone quarrying and sand mining (symbol 013), construction metals (280), non-metal minerals (26), and wood excluding furniture (20) industries.
[b] Investments in construction at fixed prices.
[c] The decline that took place in 2009 in industrial production of construction products (labeled in gray) was the result of a low point in the business cycle that year, since not all production is directed toward the construction industry and some of it is influenced by the business cycle.
SOURCE: Based on Central Bureau of Statistics data.

Exports grew this year by 4.4 percent. However, if Intel is deducted, then they remained almost unchanged, as was the case for foreign demand.

[22] See Box 2.3 in the Bank of Israel Annual Report 2008, p. 67.

Particularly noticeable is the drop in the manufacturing exports of traditional technological industries.

Particularly noticeable is the drop in the exports of traditional technological industries, such as textiles, which is the result of the decline in global demand in general and in Europe in particular. These industries are characterized by a relatively large proportion of exports to Europe and in most cases there is no possibility of shifting these exports from Europe to Asia, due the high costs of shipping to Asia.

The high tech industries export about 80 percent of their output and therefore their output is highly dependent on foreign demand. This year, their exports grew as a result of the recovery in the export of pharmaceuticals and electronic components. If electronic components are ignored, then high tech exports grew by 1.6 percent, which is due to the shift of these exports to Asian countries.[23]

Table 2.9
Industrial Production and Exports in Selected Industries

(percent)

	1	2	3	4	3+4=5
	2012	2012	2012	2006	
Industry	Annual rate of change of GDP	Annual rate of change of exports	Exports as a share of revenue	Indirect exports as a share of revenue[a]	Total exposure to exports
Industrial production (excluding diamonds)[b,c]	3.7	4.4	42.0	1.4	43.4
Industrial production excluding electronic components	0.8	0.1	39.5	1.3	40.8
Low-technology industries	-1.6	-6.7	9.8		
of which: Food, beverages and tobacco	1.7	-2.6	4.9	2.4	7.2
Textiles, clothing and leather	-9.6	-11.7	50.5	2.5	53.0
Printing and publishing	-4.8	-9.5	3.5	10.9	14.4
Medium-low technology industries	2.6	-4.6	32.5		
of which: Sand mining and quarrying	12.6	-18.2	66.8		
Rubber and plastics	-0.3	-0.4	40.7	8.2	48.9
Metal products	0.6	-3.7	29.0	11.8	40.8
Medium-high technology industries	-0.5	-1.5	38.9		
of which: Chemicals (excluding pharmaceuticals)[d]	1.9		33.5	23.1	56.6
High technology industries	8.1	10.9	75.7		
of which: Excluding electronic components	-1.2	1.6	74.2	16.9	98.6
Electronic components	36.2	67.4	81.7		
Electronic communications equipment	-4.6	-4.9	72.5	2.4	74.9
Control and supervision equipment	0.5	0.0	69.7	2.1	71.8
Pharmaceuticals	13.1		85.0	0.7	85.1

[a] According to 2006 input-output data.
[b] In order to present clear manufacturing data, we used industrial production data for this table, as opposed to Table 2.7, where we used product data by industry.
[c] It is possible that the rate of indirect export may indicate a low exposure of the industry in general and high exposure of a sub-industry. An explanation is presented in the Box.
[d] From 1995 input-output tables; Exports as a share of revenue relates to 2010.
SOURCE: Based on Central Bureau of Statistics data.

[23] For further discussion, see Chapter 7: The Balance of Payments, the section on Israel's exports of goods.

(iii) Business services

The output of business services, which grew by 4.9 percent this year, constitutes about 25 percent of the economy's principle industries output. This increase should be viewed as part of a long-term trend in the developed markets, including Israel, which involves the shift from manufacturing to services. In Israel, the export of computer services and R&D services accounts for a high proportion of the export of business services. Other business services are also affected by foreign demand since they provide services to exporting industries (Table 2.7, column 5).

This year, the exports of high tech industries grew as a result of the recovery in the export of pharmaceuticals and electronic components.

The output of computer services and R&D services grew this year by 15 percent. Exports, which account for about 76 percent of the industry's output, grew at a particularly impressive rate of 18 percent. This followed a number of years of stagnation during which its weight in Israel's exports remained unchanged. The growth in the export of advanced services is benefiting from the relatively strong global demand for computer services.[24]

The output of computer services and R&D services grew by 15 percent this year.

Box 2.2
The Cellular Telecom Reform

The cellular telecom reform led to a substantial price decrease in services and to a substantial increase in usage. As a result, the price of these services for the Israeli consumer is now low by international standards. The earnings of the established companies in the telecom industry shrank since these earnings are a function of regulation[1], and the number of their employees decreased as well. In this box we will review the government measures taken with respect to cellular telecom and their impact on consumers and companies. In addition, we will examine whether lessons can be learned from developments in this industry regarding other industries in which competition should be encouraged.

Government measures: Before the government measures in question, there were three companies[2] with similar market segments active in cellular telecom. The level of competition was determined by means of government regulation. Economic theory projects that when obstacles to competition exist, removal of the obstacles will lead to a price decrease for the consumer and to increased activity in the industry. This did indeed happen.

The government began to reform cellular activity at the beginning of 2008, when the mobile number portability program (MNP) was implemented. Government measures were targeted at four objectives—encouraging competition, reducing costs, reducing the obstacles to moving between the cellular companies, and increased transparency—and a description of these objectives is given below.

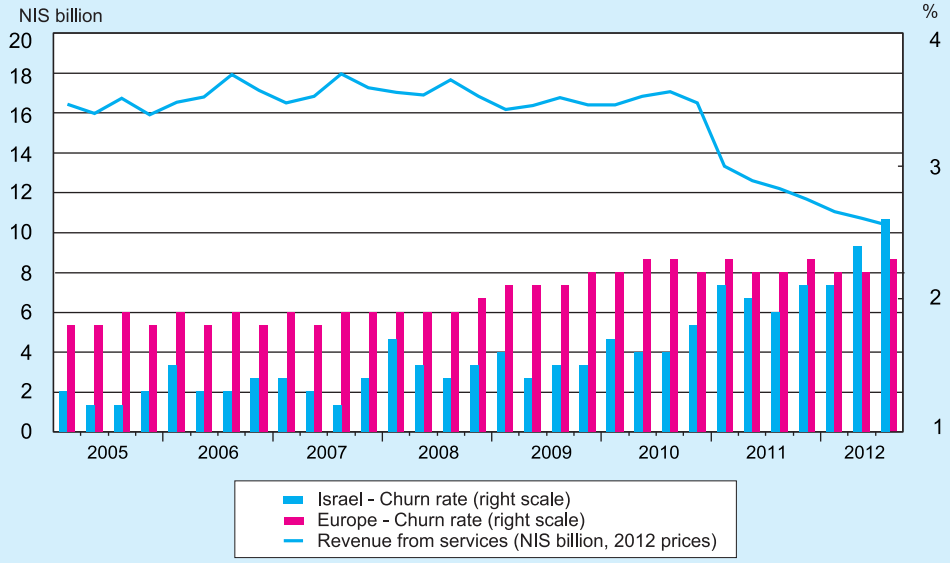
[1] If regulation is the dominant factor in determining the level of competition, it has some effect on the level of earnings as well.

[2] To be more precise, four companies operated in the market, three of them with similar characteristics and one small company with a specialized market.

[24] For further discussion, see Chapter 7: The Balance of Payments, the section on the export of high technology services.

Measure	Description	Initial application date
Encouragement of competition		
Entry of new operators	The government prescribed arrangements for the entry of new operators, with the operators receiving a financial incentive to increase the number of subscribers.	Began to operate at the end of 2012:Q1
Entry of virtual operators	The government prescribed arrangements for the entry of virtual operators, operators that rent air time from an operator with a cellular license	2011
Reducing costs		
Prevention of migration to a foreign network in a border area	For as long as reasonable reception exists, the operator must provide the service through an Israeli network. This will end the situation in which consumers had to pay at overseas rates for talking or browsing in areas close to the country's borders.	2011:Q4
Reduction of mobile termination rates (MTR)	Calling from one network to another now costs NIS 0.07 per minute, a quarter of the previous cost.	2011:Q1
Reduction of barriers to moving between cellular companies		
Reduction of barriers to the import of cellular telephones	Revocation of the requirement for obtaining authorization from the Ministry of Communications for the import of devices. Until this requirement was revoked, only a few large importers existed.	2011:Q4
Prohibition on the revocation of conditioned benefits when a customer wishes to terminate a plan	Under regulations, when a customer asked to terminate a plan, the customer had to pay for any "gift" which they received from the company. The regulator decided that the cellular company must continue to provide the subsidy/gift even to a customer who wants to terminate the plan.	2011:Q2
Abolition of the requirement to go to a service center in order to move from company to company	One of the companies had required its customers to go to a service center in order to disconnect from it.	2011:Q4
Abolition of the fine for breaking a plan	In the past, subscribers who wanted to disconnect from the service before the end of the contract had to pay a fine. In order to reduce the transition barriers, the fines were abolished in two stages, with a partial abolition in 2011 and a complete abolition in 2012.	In two stages, during 2011:Q1 and in 2012:Q2
Neutrality of the cellular network and of the terminal equipment	The cellular companies are not entitled to restrict the usage of devices and certain applications.	2011:Q1
Abolition of the locking of devices	Locking the SIM card from use at other cellular companies limited the subscriber's ability to move from company to company, since the subscriber had to crack the device or buy another device.	2011:Q1
Ending the connection between the cellular service and purchase of the telephone	Before the amendment, the companies gave discounts to those buying terminal equipment whose price was often higher than the market price. When a customer asked to disconnect, he was obliged to continue paying the full price for the equipment.	2009:Q4
Mobile number portability (MNP)	Subscribers can transfer their telephone numbers from one cellular company to another, and do not have to replace their cellular number in order to move between companies.	Beginning of 2008
Increased transparency		
Accessibility of information concerning exceeding overseas surfing packages	At present, a subscriber does not receive a warning when he exceeds an overseas surfing package. It is proposed to oblige the operators to issue a warning by means of an SMS.	Under hearing

Figure 1
Mobile Phone Companies' Revenue from Services[a], and Monthly Customer Churn Rate[b], 2005-12



[a] Publicly traded cellular companies: the veteran companies and HOT Mobile.
[b] The decrease in revenue in 2011 was partially the result of reduced interconnectivity fees. These amounts are taken into account in revenue but are also to some extent taken into account in operating expenses. Therefore, with the decrease in interconnectivity fees, and in parallel to the decline in revenue, their decline also reduced operating expenses. The Ministry of Communications conducted an analysis where it (1) also included revenue from equipment, and (b) neutralized the effect of double counting of the interconnectivity fees. This analysis indicates a more modest decline in cellular company revenues.
SOURCE: Based on Global Wireless Matrix.

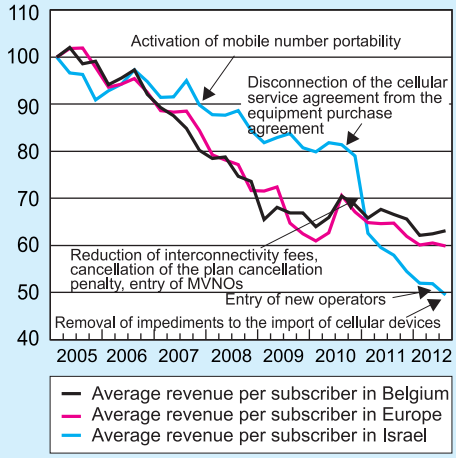
Information in the invoice	Information on the plan will be detailed in the invoice in a manner that will enable the consumer to compare between different plans.	2011:Q3

The measures taken were successful in dealing with most of the barriers to competition, leading to a considerable increase in the level of competition. This is evident from the rise in the churn rate, which is the rate at which customers leave one company for another: Before the reform, the churn rate in Israel was lower than that in Europe, but after the reform it exceeded the latter (Figure 1).

The growth in competition led to a substantial decrease in cellular fees. In ARPU[3] terms, the price of service in the third quarter of 2012 was 40 percent less than its price in the third quarter of 2010, when most of the reform measures had yet to be completed (Figure 2). Concurrent with the reduction in the cost of the service, the number of call minutes increased, as did the wireless internet browsing packages.[4] Overall, therefore, consumers purchased more and paid less, receiving more services (browsing packages and call minutes) for less money.

3 Average Revenue per User.
4 Data on expansion of the service in browsing packages do not exist.

Figure 2
Real Index of Average Income per Cellular Subscriber[a,b] (adjusted by the country-wide CPI), 2005-12 (Q1/2005 = 100)



[a] An alternative index that uses per capita terms instead of revenue per subscriber strengthens the price decline in Israel compared to Europe, because the number of subscribers per capita in Europe grew more during this period than in Israel. In the third quarter of 2012, there were more subscribers per capita in Europe than in Israel (1.31 compared to 1.21 respectively), such that revenue in Europe compared to Israel in revenue per capita terms is even higher than in revenue per subscriber terms.
[b] See Note 2 in Figure 1.
SOURCE: Based on Global Wireless Matrix.

After adjusting for purchasing power, prices for cellular services in Israel are now lower than in European countries, particularly such countries as Belgium and the Netherlands (Figure 3).[5] The cost of service in Europe is higher than in Israel and MOU[6] per user is less than in Israel (Figure 3).

The reform's effect on the cellular companies: The substantial decrease in the price of service was reflected in reduced income from services and in a considerable decline in earnings (Figure 1). The cellular companies launched streamlining programs, which included an adjustment in manpower to the new regulatory environment.[7]

Lessons for other industries: The government measures taken with respect to the cellular industry related to four issues: encouraging competition, reducing costs, reducing the barriers to moving between the cellular companies, and increased transparency. The characteristics of the cellular companies enabled the government to take action in each of these four areas, thereby contributing to the success of the reform. The companies facilitated the reform because they are not a natural monopoly. This is not the situation prevailing in the piping and distribution of electricity, water and gas, where infrastructure investments dictate the existence of a natural monopoly. Although economies of scale do exist in the cellular industry because of high infrastructure costs, the monopoly there was basically regulatory. Regulation succeeded in solving the problem of infrastructure costs by permitting the operation of virtual companies devoid of infrastructure, and enabled new infrastructure companies to use the infrastructure of established companies until they can fully deploy their own infrastructure.

Figure 2 shows that it was not only the encouragement of competition via the entry of new operators which reduced the cost of the service to the consumer. The removal of transition barriers and increased transparency also spurred this development. It therefore appears that in industries that do not constitute a natural monopoly—banking for example, where a number of competitors exist[8]—competition can be

[5] An appropriate suitable comparison cannot be made between North America and Israel because of the differences in population density. Countries such as Belgium and the Netherlands are suitable for comparison since they are similar to Israel in size and population density—factors that are likely to affect the level of investment per subscriber in cellular infrastructure. Since the data for the Netherlands are very similar to those for Belgium, only one of them was presented.

[6] Minutes of Use.

[7] Data for two established companies show that manpower at one company, in terms of full-time posts, was over 20 percent lower at the end of 2012 than at the end of 2011. Initial data for the second company are indicative of a larger adjustment in manpower. However, the new companies absorbed workers.

[8] In the long run, new competitors can enter.

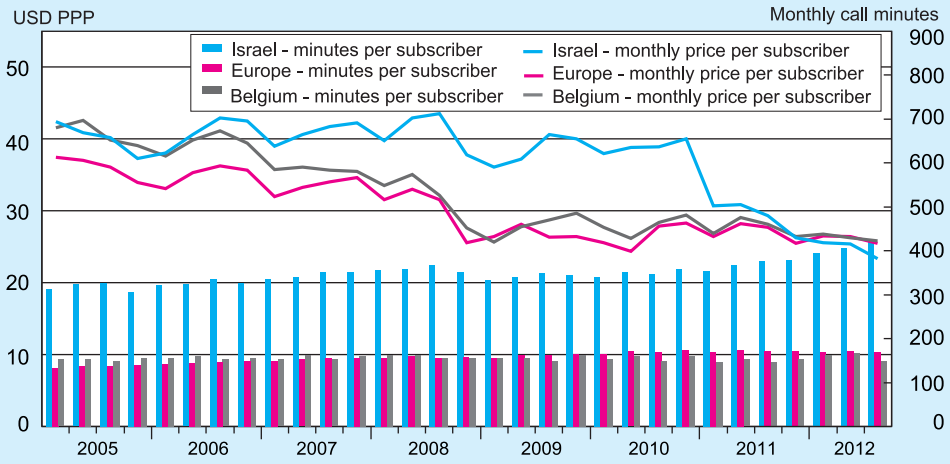
increased by similar means, by increasing transparency and reducing transition barriers which can be achieved by enhancing consumers' ability to move between the existing players.

Measures for increasing competition by reducing transition barriers and improving transparency were indeed specified in the interim report of the interministerial Team to Examine Increasing Competitiveness in the Banking System.[9] These measures included improving mobility by making it easier to open an account on the Internet, and to close an account and transfer standing orders to a new account. Promotion of the recommendation concerning the creation of a "banking ID"—a document that will present detailed information on the customer's assets and liabilities in a uniform manner in the entire system—is likely to help increase competition. This is, *inter alia*, because it can form a basis for the receipt of offers from competitors.

As regards increased transparency, the publication of comparative information on the cost of banking services could also contribute to increased competition.

It should be noted that the cellular companies also facilitated the implementation of the reform by virtue of their flexible manpower structure. Even though not every area has such a manpower structure, this should not constitute a real impediment to the reform because increased competition is likely to lead to manpower flexibility in the area in question.

Figure 3
Monthly Call Minutes and Monthly Price per Subscriber[a] in Current PPP-Adjusted Dollar Terms[b], 2005-12



[a] When comparing in terms of price per call minute instead of price per subscriber, we find that the price in Israel is even lower compared to Europe because the number of call minutes per subscriber in Israel is higher.
[b] Publicly traded cellular companies.
SOURCE: Based on Global Wireless Matrix.

[9] For more details, see "Interim Report of the Team to Examine How To Increase Competitiveness in the Banking System–Summary Report". http://www.boi.gov.il/press/eng/120716/120716du.pdf

Box 2.3

Infrastructure Investment and Main Projects

The year 2012 was notable for very large growth in infrastructure investment, continuing the trend of the previous six years. These investments reached 3.9 percent of GDP compared with an annual average of 2.7 percent in the years 2006 to 2011. Infrastructure investment facilitates sustained growth in the economy. In the water industry and especially water desalination, and in the electricity industry, the primary role of investment is to assure supply of the service.[1] In the communications, transportation and energy industries, infrastructure investment makes it possible to increase productivity in the economy[2]: An improvement in roads and public transport for example, increases the range of employment opportunities and reduces firms' transportation costs, while investment in energy infrastructure reduces the price of energy and makes it possible to expand production.

In the water industry, the investment growth in three sectors of activity continued: the nationwide water network, water desalination, and investments in water corporations and local authorities. These investments, and particularly investments in desalination, greatly reduced the concern over a water shortage. These three sectors' share of total investments in water has remained practically unchanged since 2006.

In the electricity industry, investments have increased production capacity (installed electricity capacity) by a rate higher than the average annual growth in consumption. As a result, reserve capacity has increased and the risk of an electricity shortage has decreased. The electricity company invested in improving the electricity grid and, together with private producers, invested in increased production capacity. Installed electricity capacity[3] rose by over 7 percent in 2012 due to a 500 megawatt growth at the Israel Electric Company and a 450 megawatt increase at private electricity producers. For the first time, a private producer established a power station with a significant installed capacity, and other private power plants are at advanced stages of construction.[4]

In the energy industry, investments in the Tamar natural gas field are continuing, and gas from it will begin to flow in the second quarter of 2013. Also continuing are investments in the installation of a maritime and land supply network for the gas.

In the transportation industry, road investment increased and a highly impressive investment of NIS 600 million was made in the "Okef Krayot" bypass in the Haifa Bay area. Construction of the A1 railway line from Tel Aviv to Jerusalem continued, as did investments in mass transit systems in the country's three metropolises: the development of the *Metronit* in Haifa, the light railway in

1 Investments in electricity and water increase capacity. The cost incurred by not supplying electricity or water is exponentially more than the price of the service.

2 See Ran Sharabany (2008), "The Effect of Infrastructure Capital on Manufacturing Industries in Israel", Discussion Paper 2008.05, Bank of Israel.

3 Standardized output excluding co-generation and green energy. This is because it is not possible to compare standardized output, which is available throughout almost the entire year, with renewable energies whose availability is lower.

4 Two private power plants, with a cumulative installed electricity capacity of 1,750 megawatts, have passed the stage at which an agreement has been reached with the financing body.

Table 1
Infrastructure Investment, 1995–2012

(annual change, percent)

	Total infrastructures	Total infrastructure excluding energy	Communications	Transport					Electricity	Energy (oil and gas)*	Water
					Land Transport						
				Total	*of which*: Land transport	*of which*: Roads	*of which*: Rail	*of which*: Seaports and airports			
1995–2000	4.0	4.5	11.7	4.7	4.4	3.8	14.0	6.2	-1.9	-8.6	0.9
2001–2005	-2.8	-3.0	-9.6	-2.4	-0.3	-12.2	41.0	-16.3	1.1	1.7	7.2
2006–2011	7.2	0.8	-3.5	2.6	2.0	8.7	-7.7	7.5	3.6	56.3	5.0
2011	21.3	3.9	-8.1	-2.9	6.4	12.0	-7.1	-49.5	23.3	82.5	36.6
2012	26.0	10.9	-3.1	5.1	5.0	-0.2	20.8	6.2	44.2	56.3	7.6
2012 NIS million	36,048	23,528	2,794	9,566	8,757	6,302	2,435	809	7,625	12,520	3,326

* Including petroleum and gas exploration.

SOURCE: Central Bureau of Statistics.

Jerusalem, and the planned light railway in Tel Aviv (in the red line, whose development is falling behind the original timetable).[5]

The light railway line in Jerusalem is a large-scale project that exemplifies the extensive impact of the construction of innovative transportation infrastructure. The project contains a single 13.8 kilometer line that connects the Pisgat Zeev neighborhood to Mount Herzl via the city center. In its present format, the line has 23 stations and plans exist for extending it to Neve Yaakov in the north and to Hadassah Ein Kerem hospital in the south. At the terminus stations of the line, free parking lots for those using the railway have been opened in order to encourage use of the line instead of private cars in the city center.

The light railway and the public transport lines accompanying it together form the skeleton of the new public transportation network. Light railways and high-capacity buses will run on these main routes. Feeder bus lines will run in addition to the main routes. These will feed the main routes and will pick up passengers from them, thereby providing a solution for specific neighborhoods. The system will be complemented by longitudinal lines, which will connect between main journey start and destination areas that are not served by the main routes and the feeder lines.

The light railway changed the face of public transport in Jerusalem. The number of journeys on the light railway now amounts to 2.1 million out of 12 million journeys by public transport in a typical month.[6,7] This means that over 17 percent of journeys—entries of passengers to public transportation in

[5] The development of mass transit systems in metropolises in Israel is lagging far behind that in other metropolises worldwide (Bank of Israel Report 2011, page 114).

[6] No accurate basis exists for comparing the number of passengers on public transport before and after the commissioning of the light railway.

[7] Not including journeys by members of the security forces. Data on a typical month were compiled from data for November and December 2012.

Table 2
Prominent Projects of Recent Years

Field	Project	Estimated investment to end of 2012 (NIS million)	Estimated total investment in the project (NIS million)	Expected completion
Railways	Line A1	2,230	6,800 (will be revised upward)	End of 2017
	Tel Aviv Light Rail	300	14,000, of which NIS 300 million in 2013.	2018
	Jerusalem Light Rail	4,100, of which NIS 300 million was in 2012	Continued investment is not budgeted.	Completed at end of 2012
Natual gas	Israel National Gas Lines network	Establishment of a land and maritime natural gas delivery system	3,200	2014
	"Tamar" project		About 12,000 (estimate)	May 2013

Jerusalem and Mevasseret Zion—are journeys on the light railway.[8] The railway is not yet operating in optimum mode, since the bus network has to be matched to it in a manner whereby buses will not compete with it but feed it.[9] When this adjustment is made, the proportion of those traveling by train can be expected to increase greatly, and its contribution to the transport network in the city will increase.

[8] SOURCE: Ministry of Transport, Nationwide Public Transport Clearing House.

[9] Competition between the various forms of public transportation in the metropolis has negative exogenous effects. For example, if buses and the light railway are direct competitors, a bus will have no motivation to feed the light railway lines. Moreover, if a bus leaves just before the light railway, it will take away customers from the light railway. A public transport system in a metropolis must be integrative, and the regulator must ensure that different operators' activity is integrated. The operators must obviously be provided with an incentive to improve the service, but not by means of direct competition between them.

b. Construction and the housing market

The level of activity in the construction industry this year reached a record high for the past decade, even though its growth rate moderated: output grew by 4.3 percent, compared with about 9 percent annually in the past two years, and the number of building starts fell to about 40,000 housing units, from about 46,000 last year. At the same time, for the fifth consecutive year, home prices continued to increase, and their rate of growth increased during the year, as opposed to having moderated last year. These trends match the rise in demand—a result of demographic growth, a rise in income, and a decrease in interest rates and yields—and moderation in the growth of the supply.

The major constraint on the expansion of supply was probably a decrease in the number of building permits, which reflects production constraints of the Local Planning

Table 2.10
Construction Industry Data, 2001–12

		Annual average change (percent)						
	Level in 2012	2008	2009	2010	2011	2012	2001-06	2007-12
Population (thousands)[a]	7,905.4	1.8	2.4	1.9	1.9	1.8	1.9	1.9
Real salary per salaried position (NIS/month, 2004 prices)[b]	6,624.4	1.9	-1.7	0.8	1.7	1.6	-0.7	1.2
GDP per capita (NIS thousand)	101.3	2.2	-0.7	3.1	2.7	1.2	0.8	2.1
Total construction output (NIS billion, 2005 prices)	74.7	1.1	0.6	10.0	9.9	4.1	-1.6	5.8
of which: Residential (including renovations)	44.6	10.5	8.2	12.8	12.5	5.9	-1.5	8.5
Nonresidential (buildings)	14.5	1.6	-1.5	7.9	5.0	-3.1	-5.5	2.9
Other (earthworks and defense related)	13.2	-1.1	-4.6	8.9	8.7	7.5	1.6	3.8
Stock of homes in process of construction (thousands)	85.5	3.7	3.6	11.3	16.1	3.2	-4.7	6.4
Building starts (thousands of housing units)	39.8	7.7	5.4	16.0	12.8	-13.0	-6.2	4.1
Building completions (thousands of housing units)	37.0	3.1	7.4	1.9	3.0	7.9	-5.5	3.1
New homes available for sale by private sector (thousands, end of year)	15.8	-1.7	-23.8	34.1	33.6	3.3	-4.8	2.7
Construction product (NIS billion, 2005 prices)	36.7	3.5	0.7	8.6	9.5	4.3	-1.2	4.8
Employees[c] (thousands)	225.8	3.3	-2.9	7.1	2.5	5.3	-4.0	4.1
Home prices relative to CPI excluding housing	--	2.5	12.6	15.3	7.6	1.5	-2.5	6.1
Rents relative to CPI excluding housing	--	-1.5	11.5	2.9	3.1	2.6	-0.5	2.5
Input prices relative to CPI	--	-0.6	-3.3	-0.1	0.6	1.7	2.5	0.3
		Annual average level (percentage points)						
Average interest on CPI-indexed mortgages	--	3.8	3.2	2.4	2.8	2.6	5.4	3.2
Yields on 10-year CPI-indexed government bonds	--	3.5	2.9	2.2	2.4	2.0	4.4	2.7
Average interest on unindexed variable rate mortgages[d]	--	4.4	1.8	2.6	4.0	3.5	6.1	3.5
Bank of Israel interest rate	--	3.8	0.9	1.6	2.9	2.4	5.7	2.6

[a] The large increase in 2009 is statistical and is due to the replacement of the base census.

[b] Until 2002, derived from the wages of Israelis and foreign workers; since 2002, Israelis only.

[c] Includes an estimate of unreported foreign workers.

[d] Data exist since 2003.

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

and Building Committees, which are authorized to issue construction permits. The number of employees in the industry continued to increase this year, alongside the rise in real salaries relative to the rest of the business sector, a situation that indicates a growth in demand for workers. At the same time, output per worker and overall productivity declined this year, despite the continuing growth in capital stock per worker; this result could be consistent with the fact that less suitable workers were recruited for the jobs that were added, even though the number and rate of available jobs declined during the year.

The credit extended to contractors for financing active construction grew this year (even though overall credit to the industry did not increase). At the same time the number of new homes available for sale grew to a record high for the decade. The sale of the new apartments could provide developers with additional sources of financing for continuing their activity in the industry, and the fact that they are being held shows that the financing constraints in the industry are not severe, and that the developers are able to obtain additional sources if they are willing to compromise on prices.

(1) The demand for homes

Housing services are consumed by renting or purchasing a home. Purchasing a home also serves as an investment asset (savings). In essence, the major variable affecting the demand for housing services is the rate of growth of the population, alongside the growth in income. These affect not only the number of homes demanded, but also their size and quality.[25] Other variables affecting the desire to purchase a home are interest rates (short and long term). Alongside interest rates, the demand for homes is also affected by the availability of credit, which is reflected in the conditions for granting credit that the banks make available to home buyers, such as the size of equity capital and the ratio between the amount of the repayments of the loan and the borrower's income. In general, these variables are determined outside the homes market, and because the supply of homes in the economy is relatively rigid in the short and even the medium term (see below), a change in demand resulting from these factors will be reflected first and foremost in the price, and only afterward in the volume of construction.

The fluctuations in the population and income variables are not large and are predictable for the most part, and therefore do not cause great price fluctuations in the short term. Israel's population growth rate of about 1.9 percent a year has remained reasonably stable over the past decade (Table 2.10).[26] Even though the population composition affects the potential quantity of households—that is to say, the age composition and behavioral changes such as marriage age, the number of couples marrying and the number divorcing, and single-person households—these changes are predictable and usually occur slowly, so that they allow for gradual adaptations in the

[25] A change in these factors—population and income—will be reflected by a shift in the demand curve.

[26] The immigration wave at the beginning of the 1990s is an example of an exceptional growth of population. This wave led to a sharp rise in housing prices during that decade.

supply. It is important to note that, as opposed to the population growth in the relevant age groups, the number of households is also affected by the price itself (movement along the demand curve): given the population, the interest and the income, an increase in the price of homes and rent will reduce the number of households and increase their residential density. The demand for homes is also affected both by expectations of the development of these variables, as well as expectations of change on the supply side. Also, changes in the level of income—which are reflected in real salaries or in the growth of per capita GDP (the latter reflects income and employment)—generally move along narrow boundaries (Table 2.10). These variables dictated the trend of the rise in demand for housing in recent years. In the short term, interest rates and alternative yields in the economy's capital market affect the financing costs of purchasing a home, and the present value of housing services—and therefore the demand for homes. (See also the discussion on prices below).

This year as well, continuing from last year, a macroprudential measure was adopted to reduce the risks to the banking system (see Section C); this year the measure was adopted in November, and focused on reducing the loan to value ratio (LTV). This measure is expected to also stem the growth in demand.

(2) The supply

The supply of homes consists of the stock of apartments in the economy and the construction of new apartments. Given the producer's marginal cost (which is reflected in the supply curve), the desire to build new apartments increases the higher the price. An essential condition for increasing supply is the availability of land with an attached building permit; admittedly there is also a need for production factors of labor and capital, and for financing options, but the elasticity of their supply is greater than that of planned land. The rigidity of the supply is not only a function of the time required to build an apartment in Israel—about two years—but is mainly due to the shortage of planned land. The following sections describe the production function and the development of the factors of production.

2.1 Land availability

Most land in Israel is state owned, although in certain areas in the center of the country there is also privately owned land. The major developer involved in preparing land for construction is the government, operating through the Israel Land Administration (ILA) and the Ministry of Construction and Housing. Table 2.11 presents in summary form an estimate[27] of the time that elapses from the moment the ILA decides to convert land into built-up land and the receipt of the building permit—about 11 years.[28]

The number of homes approved this year by the district planning committees grew to 60,000, from 25,000 per year during the past five years.

[27] Stages A to C in Table 2.11 are a general estimate, an order of magnitude. The estimation regarding Stages E to G is based on econometric estimation.

[28] For details see the Bank of Israel Annual Report – 2011, Chapter 2, the Construction Industry.

Table 2.11
The Rigidity of Supply – "Production" Stages of Land Planned for Construction, and Average Required Time Estimate (Years)

Stage	Initiator	Approving Body	Duration
a. Feasibility study and preparation of plans for submitting to District Planning Committees	ILA, Ministry of Construction and Housing		1
b. District Planning Committee Approval	ILA, Ministry of Construction and Housing	Planning Administration, Ministry of the Interior	5
c. Preparation of development plans (water, electricity and roads) and development costs	ILA, Ministry of Construction and Housing	Local authority and various government ministries	1.5
d. Publishing a tender and deciding on a winner	ILA, Ministry of Construction and Housing		0.5
e. Issuing a building permit (Local Committees)	Winning contractor	Local planning boards	3
f. From obtaining the permit until the beginning of construction	The contractors		0-0.5
g. From beginning of construction through completion of construction	The contractors		2

SOURCE: Bank of Israel.

The planning of the land begins with a feasibility study and presentation of the plans for approval to the District Planning Committees. The estimate of the average time required for this approval is about 5 years. In 2010, the government decided[29] on approval objectives of 60,000 housing units a year in the years 2011–20, and last year it established National Housing Committees in order to reduce to one year the time required for approval by the District Committees. This year the Planning Administration (Ministry of the Interior) reported a significant growth in the number of approvals in 2012—to 60,000 housing units, in accord with the objective, compared with 25,000 units a year[30] in the past five years. This tempo may enable the ILA to significantly increase the marketing of land in the coming years.[31]

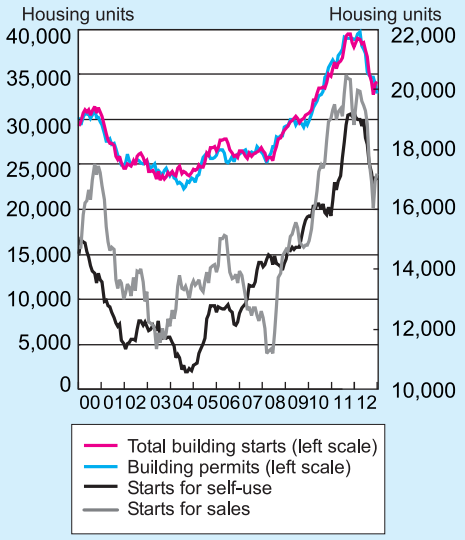
Following approval by the District Committee, and prior to marketing the land, the ILA prepares the plan for developing the land, which includes publishing tenders and signing contracts with the developer contractors (Stage C of the table). This is how the development expenses included in the land tenders that the ILA publishes in Stage D are calculated. This year, the land marketed by the ILA fell to about 15,000 housing units, similar to the annual amount in the previous decade and far less than the 25,000 units a year that it marketed in the past two years. This decrease took place throughout the country, a result of a shortage of planned land, particularly in regions of high demand.

[29] Decision No. 2019 of July 15, 2010.
[30] These figures include plans presented by the private sector, and not only by the ILA and the Ministry of Construction and Housing.
[31] The land that the ILA markets is also known as "ILA Approvals".

After winning the planned land that the ILA markets, the winner prepares the detailed plan and presents it to the Local Planning and Building Committee in order to obtain a building permit (Stage E). There are dozens of Local Boards (as opposed to six District Committees); no figures are available on the number of housing units for which applications for building permits are presented, but only the number of permits that the committees issued. A significant decrease was recorded this year in the number of permits issued, parallel to the decrease recorded in building starts.

This year, the land marketed by the ILA fell to about 15,000 housing units, less than the 25,000 units a year that it marketed in the past two years.

Figure 2.15
Private Sector - Building Starts and Permits, and Building Starts for Self-Use and for Sales, Annual Amounts, 2000-12



SOURCE: Based on Central Bureau of Statistics data.

Figure 2.15 (the right scale) presents the building starts of the private sector and the building permits, and shows that both decreased simultaneously. The building permits—whose "production" continues on average for about three years—are an essential condition for building starts, and are the final stage in the approval of construction plans (Table 2.11). Several factors indicate that the drop in the issuing of permits in the past year was due mainly to the Local Boards, and not the developers, and hence the decrease in the number of permits is the reason for the decrease in the number of starts, and not the opposite. The data presented in the lower part of Figure 2.15 (the left scale) divides the starts of the private sector into two: construction with the aim of selling (contractors) and construction for personal use. The figure shows that a decline also took place in building starts for personal use, despite the fact that this construction is less sensitive to changes in demand and financing constraints, and even though the applications for permits for this construction are one-time and are presented by numerous individuals, who lack impact on the process of issuing permits. In light of these characteristics, it is unreasonable to conclude that permit applicants for personal uses will on their own initiative slow down the approval processes, and it seems that the source of the delay lies in the work of the local committees. This conclusion is also supported in the Business Tendency Survey of the last quarter of 2012, according to which 35 percent of the respondents in the construction industry indicated the permits constraint as severe.[32]

There was a significant decline this year in the number of permits issued by the local planning boards, apparently constituting a bottleneck in the building plan approvals process and the main factor in the decline in building starts.

[32] 35 percent of the respondents indicated that the delay in obtaining permits was a severe constraint, and 27 percent indicated as such about the scarcity of available land.

It would seem that the explanation for these delays is connected to the increased burden imposed on the Local Boards. This growth is a result of the increased marketing of land in 2010 and 2011, which requires additional professional personnel to serve the Local Boards. Furthermore, this increased marketing of land possibly included "lower quality" land—for example, land that requires the local authorities to finance infrastructure development—which delays the issue of the building permits.

From the above analysis, it appears that the bottleneck for approving the plans is currently at the Local Board stage, while in previous years it was at the District Committee stage or the stage at which the ILA presents plans to the District Committee for approval. It can also be inferred from the analysis that the growth in the marketing of land in 2010 and 2011 will be reflected in a growth in the number of permits in the coming years, and that the increase in the number of approvals by the District Committees this year can be expected to be reflected in the growth of the number of permits only several years later, unless steps are taken to expedite procedures in the Local Boards.

In response to the rise in prices, and with the aim of increasing the supply of new and second-hand homes and lowering demand, especially on the part of investors[33], several fiscal steps were taken in 2010 and 2011.[34] (In addition, certain macroprudential and monetary measures were adopted. See Chapter 3 for details.) Steps were also taken this year to increase supply—lowering the minimum price in land tenders and encouraging rental construction on the part of institutional bodies—both steps recommended by the Trajtenberg Committee. Steps were also taken to ease financing for contractors (Table 2.12).

Table 2.12
Fiscal Policy Measures Taken to Increase Supply

Date	Issue	Step Taken
January 3, 2012	Land prices	Reducing the minimum price in ILA land tenders from 50 percent of the appraiser's evaluation to 35 percent in high demand areas, and to 25 percent in national priority areas.
July 4, 2012	Contractors' financing	Issuing a VAT exemption on sales guarantees for the purchase of a home during construction. Came into effect only at the beginning of 2013.
July 18, 2012	Encouragement of construction for rental purposes	A law was approved to exempt institutional investors from tax on rental income. The conditions for the exemption are: at least 100 homes in defined areas in the center and 50 in the periphery, provided that the homes serve as rental homes for at least 20 years.

SOURCE: Bank of Israel.

[33] Real capital gains from the sale of an apartment are taxable, except in the case of a first apartment. An exemption is granted on a second apartment only if it has been held for at least four years. The step adopted last year was the lengthening of the holding period for the purpose of exemption to at least eight years. The step was not approved by the legislature this year, and in August the previous situation was reinstated—full tax exemption on selling an apartment after four years.

[34] For more details see the Bank of Israel Annual Report – 2011, Chapter 2, Construction.

2.2 Factors of production and profitability

(a) Employees[35]

The number of employees in the construction industry increased this year by 11,700[36], which is about 10 percent of the total growth in the number of employees in the business sector (Table 2.13). At the same time, real salaries also continued to grow beyond the growth rate in the business sector (Table 2.14). This indicates a growing demand for workers in the industry, which is also reflected in the fact that the rate of job vacancies in construction is high compared with the business sector.[37] During the year, however, the number and the rate of job vacancies decreased—following continuous growth since the inauguration of the survey in 2009—which indicates a certain decline in the shortage of workers.

The number of employees in the industry continued to grow this year, but the growth took place among non-Israeli workers.

The continuing relative growth in construction salaries encourages the entry of Israeli workers into the industry, as well as being a mechanism for promoting industrialization in the industry. This year, however, the growth in the number of workers was confined to foreign workers[38] and workers from the Palestinian territories, and not Israelis (Table 2.13).[39] In addition, this year the government approved increasing the quota of workers from the Palestinian territories by 8,000[40], in addition to the approval of 4,000 workers in 2011 (even though only some of these approvals were reflected in the actual growth in the number of workers in 2012). The entry of the non-Israeli workers highlights the elasticity of labor input, but also includes negative aspects, such as the potential to adversely affect the employment of Israeli employees[41] and to delay industrialization in the industry (see the discussion below). Recognizing this adverse effect on Israeli workers, as well as other negative aspects, efforts were intensified from the beginning of the past decade to reduce the number

[35] This year the Central Bureau of Statistics moved from quarterly labor force surveys to monthly surveys, together with changing the sampling methods, the interview and the reporting. A chaining coefficient exists only for the last quarter of 2011, a quarter in which monthly and quarterly surveys were conducted in parallel. In order to enable comparison, the series for previous years were chain linked according to this coefficient, with the result that the data will be different from those appearing in the Bank of Israel's reports for previous years. This chaining assumes that behavior in all the previous years was similar to the behavior in the last quarter of 2011.

[36] The average of the first three quarters against the corresponding period last year.

[37] The average rate of available jobs this year out of the total number of occupied and unoccupied jobs was 8.9, against 2.9 in the business sector.

[38] The growth in the number of foreign workers comprises mainly the infiltrators from Africa.

[39] These figures emerge from the Labor Force Survey. From the data on employee posts, the number of Israelis grew by about 4 percent.

[40] Government decision No. 4970 of July 25, 2012 approved employing 5,000 Palestinian workers in construction, and Decision No. 5164 of October 18, 2012 approved employing an additional 5,000 Palestinians, 3,000 in construction and 2,000 in agriculture.

[41] Several research papers have found that foreign workers are replacing Israeli workers in the construction industry, even to the extent of causing their exit from the workforce. See Daniel Gottlieb (2002), Noam Zussman and Dimitri Romanov (2003), Zvi Eckstein and Shlomi Parizat (2003), and Shmuel Amir and Daniel Gottlieb (2005)—all listed in footnote 58 in Chapter 2 of the Bank of Israel Annual Report 2010. See also Table 5.9 in the Bank of Israel Annual Report 2011, which indicates that in 2011 unemployed Israeli workers entered the construction industry.

Table 2.13
Composition of Employees in the Construction Industry, 2000–12[a]

Number of employees	(thousands)			Change from previous year (thousands)					
	2000	2006	2012	2010	2011	2012	2001–2006	2007–2012	2001–2012
Total	227.8	177.8	225.8	13.8	5.3	11.7	-50.0	48.0	-2.0
Israelis	107.5	123.8	147.5	12.6	4.7	-1.4	16.3	23.7	40.0
Foreigners	62.5	34.9	41.6	-1.2	-3.7	10.3	-27.7	6.8	-20.9
Palestinians	57.8	19.1	36.7	2.4	4.4	2.8	-38.6	17.6	-21.0
Composition of Israelis									
Builders and construction workers	32.6	40.3	49.9	5.1	1.2	1.8	7.8	9.5	17.3
of which: "Wet work"[b]	21.8	30.8	36.6	4.5	0.5	1.8	8.9	5.9	14.8
Total non-Jewish Israelis	39.0	55.5	72.4	6.0	6.8	-0.7	16.5	16.9	33.4
Builders and construction workers	18.1	25.4	32.3	5.0	-0.1	0.4	7.3	6.9	14.2
of which: "Wet work"[b]	14.7	21.7	26.3	5.8	-0.5	-0.6	7.0	4.6	11.6

[a] The data for 2012 are the average of the first three quarters. The annual change is compared to the same period in the previous year.

Due to the transition to monthly rather than quarterly labor force surveys, the entire series is concatenated backwards according to the fourth quarter of 2011, when parallel surveys were conducted. We note that this concatenation assumes that behavior in the entire series since 2000 is similar to behavior in the last quarter of 2011.

[b] "Wet work" includes wall and floor tiling, plastering, masonry, iron work and molding.

SOURCE: Based on Central Bureau of Statistics data.

of non-Israelis. In this context a strategy was pursued of eliminating the employment of foreigners in construction (excluding experts) by the end of 2010. As a result, from the beginning of the previous decade, 42,000 foreign and Palestinian workers left the industry, while at the same time 40,000 Israelis were absorbed, three-quarters from the Israeli Arab sector, a third of whom were employed in "wet" work[42] (Table 2.13). Several decisions from 2009 onward, however, postponed to 2015 the implementation of the plan to eliminate the employment of foreign workers, and eight thousand foreign workers were allowed to continue working in the construction industry (see details in the Bank of Israel 2011 Annual Report). This policy, which continued this year as well, reflects a retreat from the policy adopted in the past decade aiming to reduce the number of non-Israeli employees. In this respect the policy also delays industrialization in the industry: the growth of investments in equipment requires financing over a lengthy period, and therefore creates expectations of high utilization of the equipment. The lack of a consistent policy regarding the employment of non-Israeli employees increases the possibility of underutilization of the equipment, and thus adversely affects the wish to invest in it, and delays technological development in the construction industry. Financing professionalism of the new Israeli workers in the industry, instead of increasing the number of non-Israeli workers, will encourage capital investments and contribute to enhancing productivity in the industry.

The growth of capital in the construction industry allowed an increase in industrialized inputs in the construction process and an improvement in production processes, leading to a shorter construction duration, increasing flexibility of supply and an improvement in total productivity.

[42] Floorers, stonemasons, plasterers, builders, formworkers and metalworkers.

(b) Capital and productivity

The moderation in the growth of construction output—alongside accelerated growth in the number of employees, and even more in the number of working hours—led to a decline in output per employee and per hour of work for the first time since the recovery in the industry in 2008 (Table 2.14). Parallel to this, capital stock per worker continued to grow this year, so that total productivity declined by 1.3 percent[43], following a large increase in 2011. This picture, however, could also attest to the recruitment of employees who are less professional than the average in the industry.[44] The data also shows that capital per employee has generally grown in recent years. Table 2.14, however, provides a broader perspective: it compares the years 2007–12 to 2001–06 and shows that compared with the first half of the previous decade, in recent years the growth in capital per employee has been eroded, as has the growth in output per

The moderation in the growth of construction output—alongside accelerated growth in the number of employees—led to a decline in output per employee for the first time since the recovery in the industry in 2008, as well as to a decline in total productivity.

Table 2.14
Indicators of Productivity in the Construction Industry, 2001–12

(rate of change, percent)

	2008	2009	2010	2011	2012	2001–06	2007–12	2001–12
Product								
Total	3.5	0.7	8.6	9.5	4.3	-7.2	32.6	23.1
Per worker	0.2	3.7	1.5	6.8	-0.9	18.9	4.4	24.1
Per hour	0.5	2.6	2.9	6.9	-5.1	26.6	0.9	27.7
Capital Inventory								
Per worker	3.1	7.8	-2.8	5.0	3.9	57.7	11.6	75.9
Per hour	3.4	6.6	-1.4	5.1	-0.5	67.9	7.8	80.9
Real wage per salaried position in construction								
Total	1.1	-2.0	1.1	1.7	1.2	-3.4	4.9	1.3
Israelis and foreigners	1.9	-1.7	0.8	1.7	1.4	-4.0	7.0	2.8
Israelis	2.5	-1.9	0.7	1.0	1.2	-8.9	5.9	-3.5
Real wage per salaried position in the business sector								
Total	-0.7	-2.6	0.7	0.4	0.7	-0.8	0.0	-0.7
Israelis	-0.3	-2.5	0.7	0.4	0.7	0.0	0.7	0.7
Estimated total productivity in construction[a]	-0.7	2.4	1.4	6.3	-1.3	13.6	3.3	17.3

[a] Calculated by the Cobb-Douglas production function, assuming that capital constitutes 10 percent of the product. This assumption is derived from the fact that the capital-to-product ratio in construction is 0.56, compared to 1.7 in the business sector and the manufacturing sector (including public services).

SOURCE: Based on Central Bureau of Statistics data.

[43] Overall productivity is estimated on the assumption that the production function is of the Cobb-Douglas type, and on the assumption that the weight of capital in the industry's output is 10 percent. The assumption regarding the low weight of capital is based on the fact that the capital stock to output ratio in construction is about a third of the ratio in the business sector, 0.6 to 1.7, respectively, and on the accepted estimate that the weight of capital in the business sector gross product is about a third.

[44] The overall productivity that is presented is estimated according to the number of employees, and not according to working hours. Had it been estimated according to working hours, productivity in 2012 would have been even lower.

Bank credit to active building contractors grew this year, even though total credit did not. In addition, contractors have another source of financing—sales of homes that are available for sale, which are at their highest point in a decade.

employee and overall productivity. This situation highlights the need for more rapid growth of capital stock in the industry.[45] Capital growth in construction facilitates the growth of industrialized inputs in the construction process and the improvement of production processes, as well as shortening the length of the construction process, making supply more flexible, and improving overall productivity.

(c) Financing real estate and construction activity

Activity in the construction industry is financed largely by credit, and the ratio of credit to the balance sheet in the industry is generally high (see also Chapter 4). Table 2.15 presents the sources of credit to the industry from the banking system and the capital market,[46] which indicates that this year, as opposed to the previous two years, credit did not increase, but rather fell by NIS 1.3 billion. Nevertheless, an examination of the

Table 2.15
Financing of the Real Estate and Construction Industry, 2009–12

(NIS billion)

	Balance				Change		
	2009	2010	2011	2012	2010	2011	2012[a]
1. Total credit from the domestic banking system and the capital market (2b plus 3d)					20.2	10.2	-1.3
of which: Balance sheet credit from the banking system and the capital market (2a plus 3d)					2.9	3.0	0.5
2. From the banking system							
a. Balance-sheet credit risk	104.2	106.2	112.0	111.2	2.0	5.8	2.4
of which: (a) Construction	45.5	44.2	42.9	43.6	-2.6	2.6	5.8
(b) Real estate activities	58.2	57.9	63.2	65.2	5.0	3.3	-3.5
b. Total credit risk[b]	167.9	187.2	200.2	200.5	19.3	13.0	0.6
of which: (a) Construction	100.6	109.3	112.0	125.1	11.4	11.6	6.0
(b) Real estate activities	66.9	66.7	75.2	74.8	8.3	1.4	-5.4
3. From the capital market							
a. Issues: Bonds					5.9	6.1	9.6
b. Stocks					7	1.6	0.4
c. Repayments (including interest)					12	10.5	11.9
d. Net capital raised					0.9	-2.8	-1.8
Mortgages to private individuals	166.6	195.1	214.7	232.0	28.5	19.6	19.4

[a] Data on the banking system for 2012 (and compared to the previous year) relate to the third quarter.

[b] Including balance sheet and off-balance-sheet credit.

SOURCE: Bank of Israel.

[45] An indication of the low capital stock emerges from observation of the capital stock to output in the industry, compared with the business sector and in an inter-industry comparison. A further indication also emerges from an international comparison of the relative salary in construction against the business sector, a comparison that was carried out on average in the years 2003–05. It was found that the relative salary in Israel was 83 percent as opposed to 100 percent on average in the advanced economies that were compared. On this and on additional indicators, see the "Report of the Committee for Arrangements, Supervision and Enforcement of Employment of Palestinian Workers in Israel" (Eckstein Report), May 2011.

[46] The data in Figure 2.15 presents the credit to the industry—that is to say, not only for residential housing, and includes credit to companies operating abroad.

items within the bank credit indicates growth of NIS 6 billion in the construction item of the overall credit, growth that reflects mainly the credit extended to contractors for projects in active construction. As opposed to this, there was a decrease in credit for real estate activity, which generally includes activities other than projects in the process of construction.

A further source of financing will be created by the sale of homes already in the process of construction. This year, similar to last year, the growth in mortgages for home purchasers continued, while at the same time the stock of available homes for sale (Figure 2.16) remained at a high level.[47] Thus, if there is a shortage of financing for expanding activity, contractors can use this stock of available apartments as a source of financing if they are prepared to compromise on prices.

(3) Activity and output

This year 85,000 apartments were in the process of construction, the highest amount since 2000, compared with about 60,000 in each of the years 2004–07, which preceded the current cycle. The growth in output in the industry moderated this year to only 4.3 percent, compared with about 9 percent a year in the previous two years (Table 2.10). The weight of the industry in the business sector gross product was 8.6 (in base prices), similar to last year, compared with an average of 7.1 percent in the years 2004–07.

There were 85,000 homes in the construction process this year, the highest number since the beginning of last decade.

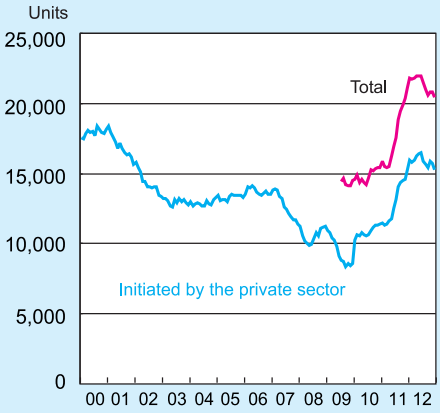
The moderation in the rate of growth of output derived from moderation of growth in residential and non-residential construction; the latter even contracted. This is in contrast to activity in other areas, such as earthworks, security construction and infrastructure, which continued to expand rapidly. The number of residential housing starts fell during the year to 40,000 housing units per year, following the decade high of 46,000 housing units in the third quarter of last year. In the years preceding the current cycle, the annual rate of starts stood at about 33,000 housing units. Since 2009 a gradual increase has been recorded, and the average annual quantity in the past four years has been about 40,000 housing units. Parallel to this, since the second quarter of last year, the stock of new homes available for sale has grown, and this year stands at the highest level for a decade (Figure 2.16 and Table 2.10).

The rate of growth in the industry's output moderated to just 4.3 percent, from a rate of 9 percent per year in the previous two years.

Building completions increased from 34,000 housing units per year last year to 37,000. Because it takes about two years to build a home in Israel, a greater increase could have been expected, as Figure 2.17 shows. In 2010–11 the share of multi-story construction in building starts grew—60 percent of the homes are in three-story or higher buildings, as opposed to 52 percent in 2008–09, and this type of building possibly takes longer (for example, because of underground parking). A further possibility is the constraint of professional workers, which is reflected in a decrease in productivity.

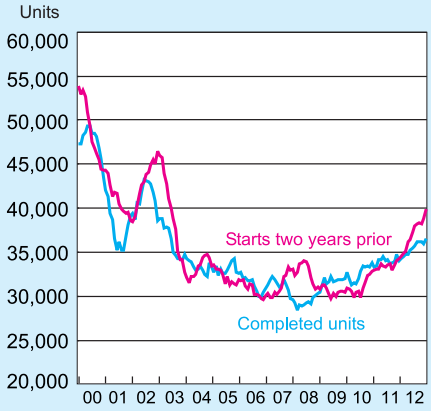
[47] This stock includes apartments in the process of construction and apartments whose construction has been completed.

Figure 2.16
Stock of New Homes Available for Sale, 2000-12



SOURCE: Central Bureau of Statistics.

Figure 2.17
Building Completions Compared to Starts Two Years Prior (Annual Amounts), 2000-12



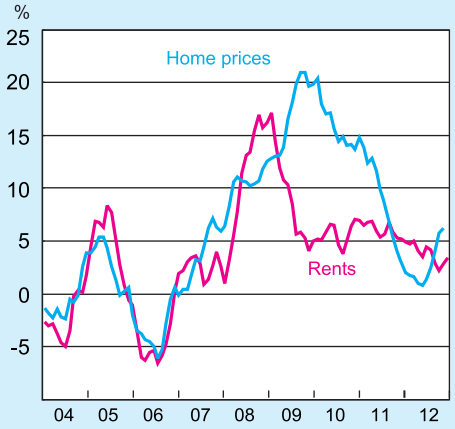
SOURCE: Based on Central Bureau of Statistics data.

(4) Prices

The increase in home prices accelerated during the second half of the year, while the increase in rental prices moderated. Therefore, the ratio of home prices to rental prices resumed its growth.

Home prices and rents[48] continued to increase this year as well, for the fifth year, against the backdrop of recovery of demand, and moderated growth in the supply of new homes. In each of the previous two years the annual increase in home prices moderated to 5 percent from a growth rate of 17 percent in nominal terms in 2009–10. The increase in rents this year moderated relative to the annual rate recorded over the past three years (Table 2.16 and Figure 2.18), and the home prices to rent ratio resumed its increase (Figure 2.19; see the analysis in Chapter 3).

Figure 2.18
The Annual Rate of Change in Home Prices and Rents, 2000-12



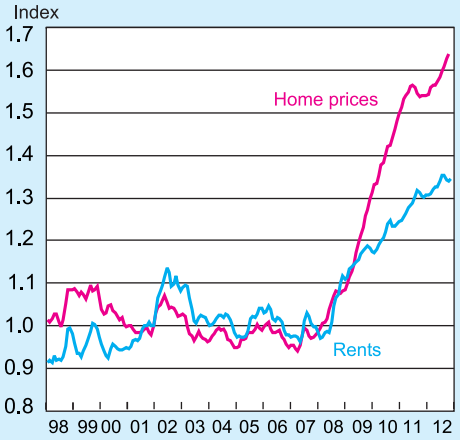
SOURCE: Based on Central Bureau of Statistics data.

During the year the increase in home prices accelerated, in constrast to the moderation that began in May 2011: from an annual rate of about 14 percent in the first quarter of 2011 to less than one percent in June 2012 (Figure 2.18);

[48] The housing services section in the CPI is called the "housing prices index" and it is measured largely according to rents; it will therefore be called "rent" here.

this moderation even included a slight price decrease in August–December 2011. However, starting from the second quarter of this year, the trend reversed, and in the second half of 2012 home prices increased by 5 percent. Alongside the rise in prices, the volume of transactions also grew, as did the number of new homes sold and the flow of mortgages. It can reasonably be assumed that in addition to the demand and supply factors that were reviewed in Section 1, the decrease in the interest rate and long-term bond yield had some influence on the rise in demand for homes.

Figure 2.19
Home Prices and Rents, 2000-12
(December 2001=1)



SOURCE: Based on Central Bureau of Statistics data.

Table 2.16
Change During the Year in Home Prices and Housing (Rents) in the Current Price Cycle (percent)

	Home prices		Housing prices (rents)		Prices of construction inputs
	Nominal change	Real change, deflated by the CPI excluding housing	Nominal change	Real change, deflated by the CPI excluding housing	Nominal change
2008	10.6	8.7	12.1	10.2	3.3
2009	19.9	16.0	5.6	2.1	0.0
2010	14.1	11.9	4.9	2.9	3.9
2011	4.0	2.6	5.1	3.7	3.8
2012	6.7	5.5	3.3	2.1	3.3
Total	67.8	52.6	34.7	22.5	15.0

SOURCE: Central Bureau of Statistics.