Chapter 2
Output, Uses and Principal Industries

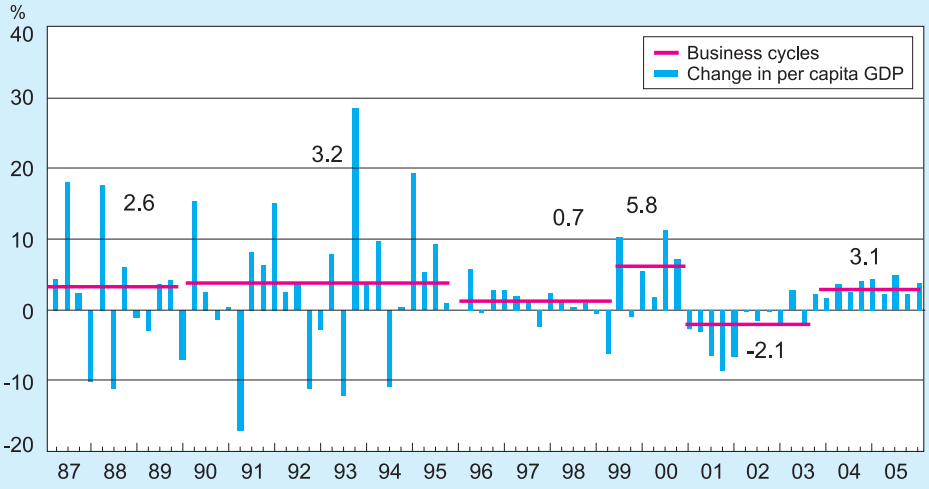
- During 2005, the fast pace of growth prevailing in the economy from the second half of 2003 continued. Expansion was led by the business sector, and especially by the service sectors, and was clearly reflected in a marked improvement of the labor market.
- Per capita GDP and the rate of unemployment returned to their 2000 levels—before the recession. The growth in GDP during the year resulted from a substantial increase in the total factor productivity. However, the average rate of increase in total factor productivity from 2000 until 2005 was low.
- The boom in economic activity resulted mainly from relative quiet in the security front and from strong growth in the world economies, matched by a continuing recovery of the international high-tech sectors.
- The growth process was also due to responsible macroeconomic policies that were in step with their goals of price stability and deficits—this for the second year running and thus contributed to a reduction in the uncertainty and risk in the economy.
- The improvement in background conditions and economic policy stimulated an increase in demand, which was quickly matched, against the background of existing unutilized production factors—capital and labor.
- The service, trade and transportation industries grew significantly because of the increase in domestic demand, but this increase did not trickle down to the construction industry, which saw a decrease in output. Manufacturing product and exports grew only at moderate rates.
- During the year the rate of growth in exports slowed down, and industrial exports did not grow; this because the unique production factors in this sector were fully exhausted, and not because of a slowing in demand for exports.
- The government also made efforts during the year to increase competition in the maritime, air, public and communications sectors. These sectors have significant influence on the productivity and welfare of the overall economy.

1. MAIN DEVELOPMENTS

In 2005, the trend of expansion in economic activity accelerated; the high rate of growth was led by the business sector.

In 2005 the trend of expansion in economic activity accelerated, and gross domestic product increased by 5.2 percent—continuing the trend of recovery that started during the second half of 2003. Per capita GDP increased by 3.3 percent; high rates of growth for 10 consecutive quarters brought per capita GDP back to the level of 2000, and the

Figure 2.1
Change in Per Capita GDP, 1987–2005
(quarterly data, seasonally adjusted, annual percentages)



SOURCE: Based on Central Bureau of Statistics data.

rate of unemployment decreased at the end of the year to 8.8 percent. Growth was led by the business sector, which expanded sharply at 6.6 percent, a rate similar to that of 2004. Public services product, which reflects the labor input therein, increased by 1.8 percent, this after two consecutive years of decreases. The rapid growth was matched by real depreciation, stability in the trade balance deficit, and an increase in the national savings rate.

The increase in economic activity was mainly the result of background forces, and was also due to macroeconomic policy.

The increase in economic activity is mainly the result of background forces, but also the result of macroeconomic policy: a decrease in direct and indirect taxes, a low increase in direct demand by the public sector, after two consecutive years of contractions, and from anexpansionary monetary policy, which was reflected in the especially low level of expected real interest rates based on Bank of Israel rates. The two economic targets of price stability and government deficit were achieved. The renewed credibility of economic policy supported the stability of the financial markets and the reduction of the risk premium, and accordingly helped to consolidate the growth trend.

A significant improvement in the security situation and an increase in GDP of developed nations, matched by a continuing trend of recovery in the international high-tech sectors, enabled the economy to expand considerably.

The main factors that operated during this and last year, included the significant improvement in the security situation, and GDP growth in the advanced economies, matched by a continuing recovery in the international high-tech sectors. The trend of improvement in the security situation continued, reflected by a sharp decrease of 60 percent in the number of fatalities from terror actions compared with the previous year. This significant decrease in events reduced the security risk attributed to Israel's economy and the related lack of certainty, and increased the feeling of personal security.

The continued trend of expansion in the world economy, especially in the developed countries as reflected by a satisfying growth rate in most OECD countries, matched by a significant increase in the high-tech sectors, resulted in an increase in world demand for exports from Israel, and indirectly—through the derived increase in national income––to an increase in additional uses. This external factor, the significant improvement in the security situation, and the economic policy, contributed to an increase in domestic demand and a decrease in the risk premium of the Israel economy, and to a significant improvement in public expectations, vis-à-vis their future situation, as reflected by the capital markets, by consumer surveys, and by the Bank of Israel's Companies Survey.

During the year, growth was led mainly by an increase in aggregate demand—by export and domestic demand—which was provided by a matched expansion of the supply side, especially by total factor productivity, with a moderate increase in GDP prices. The strong increase in labor input was in step with only a weaker increase in wages, a situation which signifies a cyclical change in labor demand and high unemployment, and was also supported by a reduction in taxes on labor and policy steps that brought about a decrease in the reservation wage, such as a (real) erosion of the minimum wage and a stiffening of preconditions to receive unemployment benefits. Hence, the increase in aggregate demand in the economy did not create significant forces for a real appreciation, and the real exchange rate even decreased, a development that hints of an expansion of supply, in excess of the increase in demand.

During the year, growth was led mainly by an increase in aggregate demand, and was matched by a quick expansion on the supply side.

Developments during 2005 point to a high and uniform rate of growth in business-sector product, yet the rate of increase in exports, which during the first half of the year was 6.5 percent, slowed during the second half of the year to only 4.4 percent, mainly because of a decrease in exports during the last quarter of the year. The rate of export increases has been declining for three consecutive half-year periods. This decrease nonetheless is matched by a reduction in excess production capacity, but

Developments during 2005 point to a high and uniform rate of growth in business product, but also to a slower expansion of exports during the year.

Table 2.1
Indicators of Economic Activity, 2000–05

(rate of change, percent)

	2000	2001	2002	2003	2004	2005	Jan–Jun	Jul–Dec
Per capita GDP	4.9	-2.6	-3.2	-0.1	2.7	3.3	3.4	3.2
Per capita GDP in OECD countries	3.2	0.4	0.8	1.3	2.6	2.0	-	-
GDP	7.7	-0.3	-1.2	1.7	4.4	5.2	5.2	5.0
Business-sector product	9.7	-1.5	-3.3	2.5	6.3	6.6	6.5	6.7
Index of manufacturing output	10.0	-5.0	-1.9	-0.3	6.9	3.8	2.6	6.2
Unemployment rate[a]	8.8	9.3	10.3	10.7	10.4	9.0	9.1	8.8

[a] These figures refer to levels, not rates of change.
SOURCE: Based on Central Bureau of Statistics data.

the rate of increase of exports during the second half of 2005 was low, especially when considering world expansion. In addition, domestic public consumption did not increase during the second half of the year, as opposed to the first half. Decreases in these uses were offset by an increase in fixed capital formation. In addition, imports decreased during the second half, such that the share of the demand that was directed to domestic product increased, resulting in a stabile increase during the second half.

The rate of GDP growth during the last two years is higher than in the past, and reflects a gradual closing of the output gap created during the recession years.

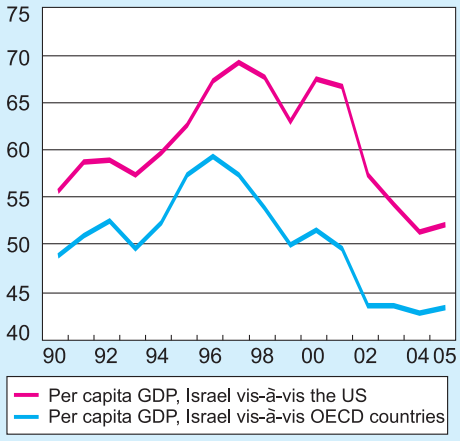
The rate of GDP growth during the last two years is relatively high vis-à-vis the past, higher than the rate of potential growth as estimated by various research projects[1], and also higher vis-à-vis other countries. This indicates a gradual reduction in the output gap — a gap that formed during 2001-2003 because of the world crisis in the high-tech sector, and the Intifada.

Yet, the level of business-sector product is relatively low vis-à-vis the factors of productions and the trend of expansion in total factor productivity[2], and the rate of unemployment is much greater than the rate of full employment[3]— therefore a significant gap in output in the economy still exists.

Still, the unemployment rate and the output level at the end of 2005 were neutral from the standpoint of their effect on prices[4], therefore it is evident that their restraining effect on prices, that operated until recently, during the recovery, has decreased and perhaps has even vanished.

Labor productivity stabilized during the first three quarters of 2005, and increased sharply during the fourth quarter, a result of a strong decrease in

Figure 2.2
Per Capita GDP in Israel relative to the OECD Countries, and the US, 1980–2005[a]



[a]Per capita GDP, Israel vis-a-vis the US: Up to 2000, the data are from the¬Penn World Tables PWT 6.1; thereafter calculated on the basis of the real rate of change.

SOURCE: Based on Central Bureau of Statistics data.

[1] The rate of growth in potential output (the business sector) derived from the increase in capital during 2005, the increase in the labor force, and the increase in total factor productivity, was 5 percent:
See. A. Barnea and J. Djivre (2004)), Changes in Monetary and Exchange Rate Policies and the Transmission Mechanism in Israel. 1989 IV- 2002.1 Discussion Paper, Department of Research, Bank of Israel .

[2] The check of output gap according to the production function method (see the study referred to footnote 1) shows that a significant gap of 5 percent still exists, with the business-sector product.

[3] For example, in 1996 the unemployment rate was 6.6 percent.

[4] The unemployment rate which is consistent with constant inflation (Non-Accelerating Inflation Rate of Unemployment (NAIRU)), which at the end of 2005 was estimated as 9 percent. This is significant as the present level of unemployment, and especially any further decrease in it, could exert pressure for an increase in wages and prices. See: A. Friedman and T. Suchoy (2004) The NAIRU in Israel: An Unobserved Components Approach, *Israel Economic Review* Vol. 2 (2)

number of labor hours per employee. Business-sector product per employee grew during the year by only 0.5 percent; and the nominal wage per hour started to increase. This development was reflected by an increase in the business-sector deflator by more than 3 percent during 2005.

Notwithstanding the strength of the recovery, and the significant increase in gross return on capital to 11.8 percent,[5] there was no significant acceleration in fixed capital formation; which increased by only 2.4 percent and from 2000 has decreased by more than 10 percent, in total. This investment is apparently low, taking into account the level of activities, the strong increase in business-sector product, the low cost of raising capital from all sources, and the constant increase in the utilization of machinery and equipment, which continue from the beginning of 2004. An examination of its components indicates, however, that its level is not significantly lower than its equilibrium level, mainly because the ratio of capital to product increased steadily, and at significant rates during 2001-2003. (See Box 2.1).

Notwithstanding the strength of the recovery, there was no significant acceleration in fixed capital formation.

After a number of years of heterogeneous changes in domestic uses, all components expanded during the year—private consumption, gross domestic investment and domestic public consumption. The contribution of exports to product during 2005 was greater than normal, because the share of uses diverted to imports was relatively minor, and as a result, the rising trend in the current account surplus continued. This development was supported by structural changes in the economy, such as an increase in the weighting of the service industry, which are not import-intensive, and the level of the exchange rate, which was high during the year (i.e., depreciated) vis-à-vis the past, supported a reduction in imports and its replacement by domestic production.

After several years of mixed changes in domestic uses, all components expanded during the year.

Growth during 2005 was not uniform: service industries grew faster than did goods industries. This development also characterizes export data: contrary to 2004, when the rates of growth in product and exports in the industrial and service sectors were equal, the contribution of the manufacturing industry during this year was less—perhaps because of limitations of supply; this wassbown an increase in manufacturing product prices and stabilization of manufacturing unit labor cost after havung decreased during the recession years. On the other hand, exports of software and tourism services increased sharply.

Sector growth in 2005 was not uniform: growth of the service sectors was faster than growth of the goods sectors.

The economic policy for 2005 was characterized by a low rate of increase in public consumption, by additional reductions in transfer payments per capita and direct and indirect taxes, and by an expansionary monetary policy which was possible because of fiscal restraint and the low rates of interest in the world. The two policy targets—the inflation target and the deficit target—were achieved, and the real increase in general-government[6], total current expenditure, including consumption, transfer payments,

The economic policy for 2005 was characterized by a low rate of increase in public consumption, a reduction in transfer payments per capita, tax cuts, and low Bank of Israel interest rates.

[5] This rate is equal to the average rate during the last 10 years, and is relatively lower for advanced economies and relatively higher for emerging economies: For example, during 1994-2003, the rate of return on gross capital in the US was 9.9 percent while the emerging markets of East Asia totaled 14.7 percent. Source: *IMF World Economic Outlook*, September 2005.

[6] Government, local authorities, national institutions and public non-profit organizations.

subsidies and interest payments on debt service, was less than 1 percent; reflecting a new expense program which restricts increases to 1 percent (only according to the draft budget). These developments contributed to increased the credibility of economic policy.

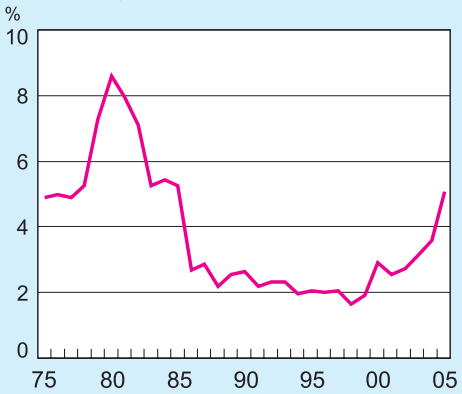
Domestic public consumption increased during the year by about 1 percent, indicating that a relatively restraining fiscal policy for the cycle had been adopted.

After two years of decreases, during 2005 domestic public consumption increased by 1.1 percent. Individual public consumption, which reflects the quantity of public services provided to individuals, such as health and education, increased by 1.8 percent, almost matching the population growth rate, and in contrast with the last two years, which saw a policy of significant reductions in the volume of per capita public consumption. However relative to the high growth rate in activities, the increase in total public expenditure was very low, such that a fiscal policy that was relatively restraining for the cycle was adopted—but this policy, which contributed to a continuous decrease in the weight of expenditure in GDP, could also have expansionary effects in the short run; as the reduced tax burden and the expectations for more reductions in the future support an expansion of private demand. This actually grew during the last two years, accompanied by a decrease in the savings rate. In addition, it should be remembered that in 2004 domestic public consumption decreased, such that the transition to growth, even if low, has positive effects on activities.

Terms of trade in 2005 deteriorated further, and as a result the purchasing power of the economy increased at a rate less than GDP growth.

The terms of trade deteriorated during the year following the spiraling increases in world oil prices. Accordingly, real income of the Israel economy in terms of purchasing power, increased at a rate less than the increase in output—4.1 percent—indicating that the Israel economy lost 1 percent of product because of the increase in import prices. This trend has continued from 2003, and because of this, the economy has to spend 5 percent of its total income from all sources on fuel imports—double than that at the end of 2000 (Figure 2.3). However, the decrease in the purchasing power of Israel's GDP contributes to a decrease in aggregate demand, mainly by hurting private demand, but it appears that the overall negative effect of the terms of trade on the Israel's economy is relatively less than in the past, because of structural changes that have been undertaken over the years[7].

Figure 2.3
Fuel Imports, 1975–2005
(percent of total income from all sources)



SOURCE: Based on Central Bureau of Statistics data.

[7] Israel's economy is not based on energy intensive industries, such that increases in fuel prices apparently do not directly affect the production side. For a broad discussion on this issue, see the Bank of Israel 2004 Annual Report, booklet 2 issued by the Department of Research, Chapter A.

2. DEMAND COMPONENTS AND SUPPLY OF DOMESTIC PRODUCT

a. The uses

Domestic uses expanded during the year, in all its components.

Domestic demand increased during the year by 4.3 percent, a result of increases in all components — private consumption, public consumption and gross domestic investments. The rate of increase in exports slowed somewhat to 5.6 percent; overall use increased by 4.8 percent — a relatively high rate, but less than the increase in GDP. This development, which is reflected in an increase in the share of product in total sources and in a decrease in the share of imports, was supported by the high level of the real exchange rate.

Private consumption per capita increased rapidly, while the savings rate decreased.

Private consumption increased during the year by 3.9 percent, such that private consumption per capita increased by 2.1 percent. The rate of increase in private consumption is less than last year, but the reason lies in the slowing of increases in purchases of durables, most of which are imported; consumption of non-durables, which are supplied mostly by the domestic market, increased by 3.9 percent, without change from 2004.

The increase in private consumption was supported by many factors which contributed to an improvement in the situation of consumers, and in their expectations, as measured by surveys: the ongoing improvement in the security situation, and the increase in demand for exports from Israel, for the third consecutive year, contributed to an increase in consumption, both directly and indirectly, by their positive influence on expectations and on permanent income. The decrease in interest rates also aided.

Table 2.2
Sources and Uses, 2000-05

(volume rates of change, percent)

	2000	2001	2002	2003	2004	2005
GDP	7.7	-0.3	-1.2	1.7	4.4	5.2
Imports	12.5	-4.9	-1.7	-1.7	11.8	4.0
of which Excl. diamonds, oil, ships and aircraft	14.8	-4.0	-5.0	-3.3	12.9	5.6
Total sources	9.1	-1.7	-1.3	0.7	6.7	4.8
Exports	22.9	-11.5	-2.4	7.5	17.4	5.6
of which Excl. diamonds	24.9	-10.8	-6.4	7.9	19.3	7.8
Gross domestic investment	0.9	-2.5	-14.6	-8.7	4.0	10.2
of which Nonresidential	6.2	-2.0	-8.7	-5.5	2.0	3.9
Private consumption	7.4	2.9	1.0	0.9	5.0	3.9
Public consumption[a]	2.2	2.8	4.3	-1.1	-1.8	1.1
Domestic uses[a]	4.7	1.7	-1.3	-1.3	3.0	4.3
Total uses	9.1	-1.7	-1.3	0.7	6.7	4.8

[a] Excluding defense imports.
SOURCE: Based on Central Bureau of Statistics data.

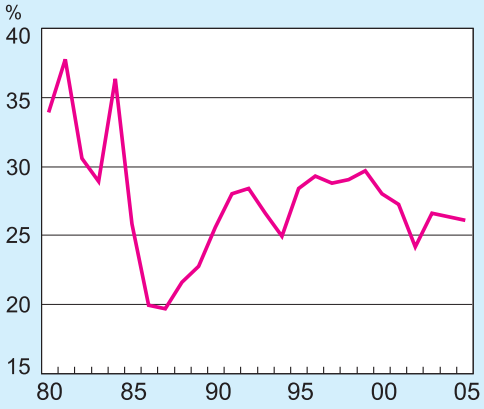
Besides the increase in income that resulted from the increase in activity, disposable wage income increased following a decrease in direct tax rates and purchasing power increased following a decrease in indirect taxes[8]. These changes were offset partially by the decrease in unilateral transfers from abroad, and by a 2 percent decrease in transfer payments per capita; and overall gross disposable private income per capita (from all sources) increased by 1.7 percent.

The value of assets held by the public also increased significantly, this for the second consecutive year, because of the increase in the value of financial assets. The effect is not immediate: the contribution of the share market boom in 2004 to current consumption per capita in 2005 is estimated at 0.9 percent[9], and possibly even more, because of the weight of shares in asset portfolios during the last few years (Figure 1.10, Chapter 1). In 2005 there was an additional increase of 15 percent in the real value of asset portfolios held by the public.

This year also saw an improvement in consumer expectations vis-à-vis their future state of affairs, as made known by consumer surveys[10]; this in addition to the significant improvement noted in 2004.

In 2005, the rate of private savings decreased (Figure 2.4), and accordingly, it seems that the improvement in expectations contributed also directly to an increase in private consumption. This

Figure 2.4
Saving Rate of Private Disposable Income,[a] 1980–2005



[a] In calculating the saving rate, private consumption is replaced by the standard of living. The standard of living is defined as private consumption *minus* purchases of durables *plus* the estimated value of services deriving from the stock of durables.

SOURCE: Based on Central Bureau of Statistics data.

[8] The reduction in value added tax is apparently miscellaneous, however, according to the moderate increase in the prices of business-sector product at market prices (including taxes) compared with the higher increase in the base prices, it appears that it is reflected in a decrease in prices.

[9] The study showed that the effect of an increase in share prices is delayed by one year. See Y. Lavi (2003). "Do Changes in Current Income Help to Explain Changes in Consumption in Israel? "*Israel Economic Review* 1(2). In 2004 share prices increased by 35 percent. It is possible that the contribution of this increase to the increase in per capita consumption is higher than that estimated in the research study, because of the weight of shares in the asset portfolio held by the public, and the size of the population which holds shares, is higher than in the past.

[10] According to a "Globes-Smith" survey, individuals' expectations regarding their personal situation 6 months forward, improved during the year. These expectations were shown to have certain attributes to foretell changes in demand, in excess of that derived from the increase in share prices and a decrease in terror. See: Y. Braude and Amit Friedman (2005): Index of Consumer Confidence and Private Consumption, Bank of *Israel Economic Review*, 78. (Hebrew).

conclusion is also supported by a check that shows that the 2.1 percent rate of increase in private per capita consumption in 2005 was greater, taking into account the increase in disposable wage income, the decrease in interest rates, and the boom in the stock market, joined to yield an increase of 1.5 percent[11] in private consumption.

During the year, there was a significant increase of more than 10 percent in fuel and electricity prices, but, because of relatively inelastic demand, consumption also increased. It is conceivable that the strong increase in nominal outlays on these items put pressure on other consumption items; if not for the increase in fuel and electricity, whose weight in total consumption is 6 percent, and taking into account that private consumption expenditures remained unchanged, the quantity increase in total private consumption was greater by about 0.5 percent than what actually was.

The rate of growth in durable goods purchases during the year was relatively moderate compared with 2004, a year that showed a sharp increase. It is possible that the reason is the increase in the relative prices of these products, which are mostly imported and which led to a diversion of consumption to domestic production and services. An additional explanation could be that consumers deferred their purchases of passenger vehicles from October onwards; taking into account declarations by the Ministry of Finance that purchase tax would be cut at the beginning of year 2006. Nonetheless, as durables generate consumption services over time, the sharp adjustment in inventories of these goods in during 2004 worked to moderate the rate of purchases during 2005.

Gross domestic investments increased rapidly as a result of inventory accumulation; while fixed capital formation increased only modestly.

Gross domestic investment increased during year 2005 by 10.2 percent. Fixed capital formation, which has decreased for four consecutive years, increased modestly by only 2.4 percent, such that the main factor in the increase of gross domestic investment was the change in inventories.

Investment in the principal industries increased by a moderate 3.9 percent. Components of this investment expanded at their long-term trends: investments in machinery, equipment and vehicles increased by 4.4 percent, continuing their increases from 2004, investments in non-residential buildings decreased by 7.4 percent, and investments in intangible assets (mainly software) increased sharply at 14.8 percent. Investments in residential properties, which from 1998, have been decreasing repeatedly, decreased by another 1.6 percent during the year.

The rate of investment in principal industries and in residential properties relative to GDP is lower than in the past.

As a result of these developments, rates of investment in principal industries and in residential properties relative to output (12 and 4 percent, respectively, at current prices) is relatively lower than in the past[12]. The ongoing recovery, the decrease in country risk, the low cost of raising funds during 2005, and the continuing increase in returns on physical capital, are actually not reflected in investment expansion

[11] A research study by Lavi (2003), noted above, found that the increase in disposable income from wages per capita, of 1.1 percent, is expected to add 0.5 percent to the increase in current consumption per capita, as the decrease in interest rates is expected to add 0.2 percent, and the increase in share prices is expected to add 0.9 percent, as noted.

[12] Lower rates were recorded only once before 1989—in principal industries; 1967—in residential buildings.

up to now, and accordingly it is possible that the low levels are troublesome. An empirical test of two components of prime investments—investments in machinery and equipment and investments in non-residential buildings (Box 2.1)—indicate that the investment in machinery and equipment agrees with the basic factors that determine its level in equilibrium. This year's lower levels can be explained by the high level of capital equipment and machinery relative to industrial output; on the other hand, regarding investments in non-residential buildings, it is difficult to draw an unequivocal conclusion, because of the difficulty in estimating the factors that establish its development.

Box 2.1
Equilibrium level of investments in the principal industries

The ratio of investment in the principal industries to GDP, which is the central variable in the long-term growth process of the economy, dropped repeatedly from 1996 to 2005 (Figure 1). This trend is contrary to trends in developed economies such as Britain[1] and the US, where the rates of investment actually increased over the last three years. However, one should remember that the decrease in our rate of investment came after the immigration wave, during which the rate of investment increased, and therefore it is not necessarily a problem, and not to mention that the rate of investment in Israel primary industries is not unusual.[2] Is today's rate of investment in primary industries too low? The investment in primary industries includes a number of components; the main component of which is investment in machinery and equipment, which was 48 percent of all investment in 2004 (at current prices). The others are investments in buildings and other construction works (30 percent) transport equipment (14 percent) and intangible assets[3] (8 percent). We will focus on the two main components.

According to neoclassic economic theory, the level of investment in equilibrium is equal to depreciation on optimal capital stock, plus the rate of growth over the long term. Optimal capital stock is derived from its marginal product and its user cost. Therefore, in equilibrium, there is a relation between the level of investment, the level of activities and the user cost of capital, as determined by interest rates, taxes on capital, and the relative price of investments. If capital stock—in an open economy—is lower than its optimal level, therefore

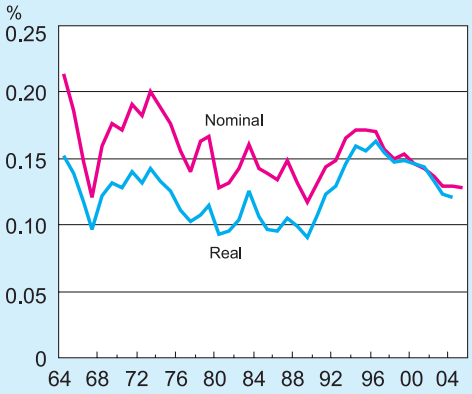
[1] C. Ellis and C. Groth (2003): "Long Run Equilibrium Ratios of Business Investment to Output in the U.K." Bank of England, *Quarterly Bulletin*, Summer.

[2] The comparison of the rate of gross investment in product over the last ten years shows that in Israel, where it was 22 percent, it is somewhat higher than in the US, similar to that of the eurozone, less than that of Japan, and significantly lower than the average in emerging markets.

[3] This component, mainly composed of domestic investment in software, is measured directly only from 1995.

throughout the stages of adjustment, when the economy builds up its capital stock, the rates of investment must be higher than that imputed from equilibrium relations.

Figure 1
Investment in the Principal Industries as Share of GDP, 1964–2004 at 2000 Current Prices



SOURCE: Based on Bureau of Statistics data.

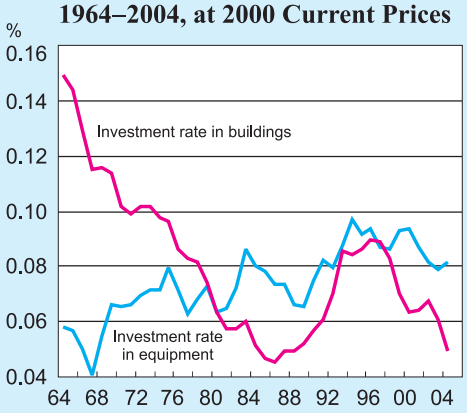
As the long run development of the components of investment in primary industries economy is heterogeneous (Figure 2), we have estimated separate equations for investment, at fixed prices, for the main components of investment—equipment and machinery, and nonresidential buildings—with quarterly data, for the post stabilization period. The estimates for the level of investment in machinery and equipment, and buildings, show that there is a definite connection between it and the level of activity, capital stock (with a lag) (which reflects the process of adjustment) and the user cost of capital. For the equation of investments in machinery and equipment, the level of activities is represented by industrial product and for investments in buildings, the level of activities is represented by business-sector product, excluding the manufacturing industry. Therefore, it is clear that the relative price increases of investment in buildings worked towards its contraction. It is also seen, that the variable of capital stock cannot be dropped, and that over the entire period under survey, the economy was still in the capital stock build-up phase. The two equations did not show any connection between the level of investments and the level of the general share index.

The equations for the rate of change in the level of investment points to the negative effect of the increase in interest rates in the short run, the positive effect of an increase in capital utilization, as measured by the Bank of Israel companies survey, and the positive effect of a number of new immigrants (lagged). The equation of investment in buildings found the significant negative effect of the number of terror incidents, with a lag of one year. As expected, when the level of investments strays from the equilibrium level, the speed of its return to this level is much faster in machinery and equipment, while investments in buildings respond slowly—apparently because of the long planning period needed.

The results of the equations of investment in machinery and equipment—the main investment component—indicate that the level in 2004 is lower by only 3 percent from that derived from the basic factors that define it in the equilibrium. Cyclical factors such as the increase in GDP, the increase in

capital utilization, and the decrease in interest rates should have contributed to additional increases therein; yet, over the last few years the investment in intangible assets has accelerated, and it is possible that it complements some of the investments in machinery and equipment.

Figure 2
Investment Rates in Equipment and Buildings in Private Sector as Share of Business-sector Product, 1964–2004, at 2000 Current Prices



SOURCE: Based on Central Bureau of Statistics

Regarding investments in buildings—the investment equation points to a more significant underinvestment: the investment in 2004 is 10 percent less than that derived from the basic factors that affect its development in equilibrium. This is a significant deviation, and it is possible that it results from supply limitations. This finding must be qualified, as the investments in buildings equation's goodness of fit is low, such that the deviation may result from variables that have not yet been identified.

Another important finding is the positive influence of the decrease in company tax on the level of investments in the equilibrium. This rate is still higher than the rate of tax that companies have actually paid, because of broad based reductions and exemptions, and because the tax laws allow offsets against years in which companies had losses, however, this is the variable that is relevant in investment decision-making, because of two concerns: (a) companies are forward-looking, and there is no certainty that the reductions and exemptions will continue; even if they expect a continuation of tax reductions, the change in the effective tax rate is matched with the statutory rate, as the latter rate is actually the basis upon which the reductions are negotiated. Sometimes companies are entitled to reductions on a multi year basis and known in advance, and in these cases, probably there is no connection between the company's investment plan and its statutory tax rate, but these are exceptional cases.

The effective tax rate can affect investment timing, because in years when exemptions and reductions are given, the relative price of an investment (after tax) is lower. For example: announcing the option to record accelerated depreciation in a certain year could affect the timing of an investment—to advance it; however the effective tax rate is affected also by other factors—among them the business cycle—and it is possible that accordingly the effect in the short run is not statistically significant. It should also be noted that the

accelerated depreciation program that was announced in the middle of 2005, is in effect until the end of 2006, such that there is no incentive to advance planned investments to 2005.

The tax rate has decreased repeatedly during the period—from 45 percent in 1987 to 35 percent in 2004. This decrease contributed to a 2 percent increase in investments in machinery and equipment, and a 6 percent in investments in buildings. On the assumption that this flexibility stays fixed out of sample, the expected reduction in company tax to 25 percent by 2010, will increase investments in machinery, equipment and buildings in the equilibrium by 3 percent; according to capital stock elasticity in the production function, assuming that the quantity of labor is fixed, this reduction increases the level of output by 1 percent, an effect that partly offsets the initial cost of the tax reduction.

Most of the increase in gross domestic investment is explained, as stated, by the changes in inventory (for a further discussion on the factors that influence investments in inventory, see Box 2.2). During 2005 there was an increase in inventory levels (positive investment), after two consecutive years of decreases. An examination of the components of inventories gives the following picture: the investment in start-ups, which is recorded as an investment in inventories of those companies, increased sharply by more than 70 percent, a figure which reflects the continuing trend of recovery in the high-tech sector; the change in inventories without start-ups is still negative, such that the trend of decreasing inventories continues, but at a lower rate, and accordingly the change contributes to an increase in gross domestic investment vis-à-vis last year's level.

Box 2.2
Changes in inventory and the factors involved

The increase in gross domestic investment during the last few years is mainly the result of a change in investment in inventory, while the changes in fixed capital formation were minor. The contribution of changes in inventory to changes in GDP during the last business cycle is significant: such, for example, the contribution of changes in inventory, according to national accounts data, to changes in product for 2005 is 1.4 percent, that is, one quarter of product growth in this year (Table 1).[1]

[1] This table is not identical with the contribution of inventory in Table 2.3, as it was calculated according to contribution of components of inventories, while Table 2.3 calculates according to contribution of total inventories. The difference between the methods of computation also point to the limitations of this method.

The investment in inventory, which is equal to the change in inventory (and accordingly could also be negative), includes a number of components: inventory of raw materials and finished goods of the industrial sector, inventory of fuel, inventory of diamonds, other inventory (held mainly by the commerce industry) and investment in start-ups, which is recorded as a positive change in inventory, up to the point that these companies are sold or begin to start production when they are deducted from inventory.[2]

The standard model for investment in inventory is the production smoothing model. The general idea is that sales fluctuate over time, and the marginal cost of production increases with quantity. In order to minimize the costs of production, the firm finds it worthwhile to "smooth" its production such that the marginal cost will be fixed at all times. The difference between production and fluctuating sales is reflected in changes in inventory. In addition and in order to prevent any shortages, firms hold a buffer stock to enable them to meet unexpected demand.

Data on investments in inventory are an integral part of the national accounts system. An additional important source, from which it is possible to understand the changes in inventories, is the Bank of Israel companies survey, where companies are asked direct qualitative questions on this subject.[3] Figure 1, which is based on the companies' survey data, shows the change in inventory over the last business cycles,[4] and shows the clearly pro-cycle movements of inventories. In addition, it appears that contrary to the first cycle (boom and bust) during which the changes in inventory, relative to other uses, were low, the cycle boom of 1999 and onwards, the changes are sharper, and they intensified the variance in GDP. Ribon (2005)[5], checked the factors behind the changes in inventories of industrial companies using the companies survey, and found that the changes in inventory of finished goods and raw materials are positively correlated with the

[2] Recording investment in start-ups as a change in inventories is unique to Israel. The Central Bureau of Statistics developed this method, because of the relatively high volume of investments and sales of start-ups. The analysis presented here relates only to traditional components of inventory, and does not include an analysis the stock of start-ups.

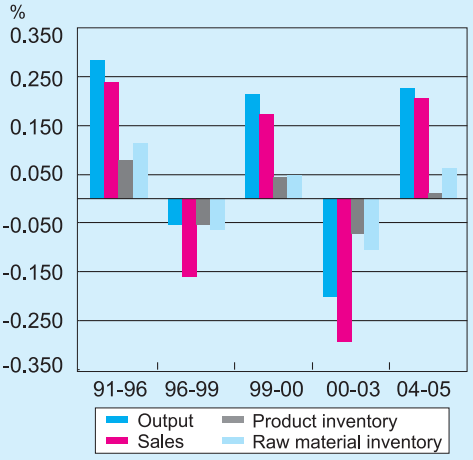
[3] The existence of an additional independent and stabile source of changes in inventory has great importance, because of the statistical reliability of inventory data in the national accounts, especially during the current year is problematic, and is subject to large retroactive changes. In a comparison of two sources of data for the manufacturing sector, it appears that the correlation between them is relatively high.

[4] The definition of the business cycle is based on the Bank of Israel composite, according to probability of recession. A recession is defined a s a situation in which the probability is greater than 50% in two out of three consecutive quarters. See the Bank of Israel 2003 Annual Report.

[5] Sigal Ribon (2005), "Changes in Inventory, Business Cycles and Financial Limitations, An Analysis Using Companies Survey Data, Bank of Israel Department of Research, unpublished.

expected change in sales (which is reflected in changes in orders during the previous period), and negatively with the change in inventory in the previous period, as is clear from the economic theory—but positively correlated with the unexpected change in sales, contrary to that expected according to the theory of production smoothing. A possible explanation for this is the high-speed adjustment of inventory, which enables companies to maintain a constant ratio of inventory to sales, even when they are unexpected. In addition it was found that financial limitations (which are measured by another question in the companies survey), if they are more strict, contribute to a reduction in raw material inventory of industrial companies, as expected, due to the higher cost of holding inventory. These findings also concur with a previous research study conducted by Ber, Blass and Yosha in 2001,[6] who investigated the effect of monetary policy on

Figure 1
Investment in Inventory and Activities in Manufacturing Industry, 1991–2005



SOURCE: Bank of Israel's companies surveys.

Table 1
The Contribution of Changes in Stocks to the Change in GDP, 2002—05

	Investment (percent of GDP)				Contribution to change in GDP (percentage points)			
	2002	2003	2004	2005	2002	2003	2004	2005
Domestic investment, gross	18.7	16.3	16.2	17.3	-2.3	-1.4	0.2	1.7
Capital assets	18.5	17.2	16.4	16.0	-0.7	-0.5	-0.1	0.2
Total investment in stock	0.2	-0.9	-0.2	1.3	-1.6	-0.9	0.3	1.4
of which In manufacturing	-0.4	-0.4	0.1	0.3	-0.2	0.0	0.2	0.1
Other	-0.9	-1.2	-0.9	-0.1	-0.9	-0.3	0.2	0.8
In start-ups	1.6	0.9	0.8	1.2	-0.6	-0.6	-0.1	0.5

SOURCE: Based on Central Bureau of Statistics data.

[6] Hedva Ber, Asher Blass and Oved Yosha, (2001), "Monetary Transmission in an Open Economy: the Differential Impact on Exporting and Non Exporting Firms", Bank of Israel Discussion Paper Series, 2001.01

decisions by companies regarding fixed capital formation and inventory, and checked if this effect is different between firms that export and firms that do not export. From their analysis, it seems that an investment in inventory is dependent on monetary policy, as reflected by interest rates on short-term credits, but firms that benefit from access to foreign markets are less sensitive to local monetary policy.

The results of the above research projects contribute to an understanding of the large fluctuations in inventories during the last business cycle: the change in inventories is the result of increased activities—actual and expected; the pro-cycle monetary policy; together with changes in financial limitations, worked together for inventory changes in excess of that required by the change in activities, and as a result, strong fluctuations in inventories were created which contributed to the relatively high variance of GDP.

Domestic public consumption increased during the year by about 1 percent, after two consecutive years of contracting.

Domestic public consumption increased during the year by 1.1 percent, after two consecutive years of decreases. Civilian demand increased by 1.4 percent, and domestic defense consumption by 0.2 percent.[13] Public services output—which reflects the labor input in such services—increased by 1.8 percent, after two consecutive years of decreases, and hence the change in public services output provided the main trigger for the jump in GDP growth vis-à-vis 2004.

Table 2.3
Contribution of Changes in Uses to Change in GDP, 2002-05

(percent of GDP)

	2002	2003	2004	2005
GDP	-1.2	1.7	4.4	5.2
Derived GDP[a]	-1.0	0.7	5.5	4.2
Total domestic uses	0.3	-0.7	1.7	2.5
Private consumption	0.5	0.4	2.1	1.7
Public consumption	1.0	-0.3	-0.5	0.3
Gross domestic investment	-1.3	-0.7	0.1	0.6
of which Nonresidential investment excl. ships and aircraft	-0.8	-0.4	0.1	0.3
Residential investment	0.1	-0.1	-0.2	-0.1
Exports	-1.3	1.4	3.8	1.7
of which Goods exports	-0.8	0.6	2.4	0.8
Service exports	-0.5	0.8	1.4	0.9
Tourism	-0.4	0.1	0.3	0.3

[a] The total contributions of domestic uses minus imports, according to input-output coefficients of 1995. The difference between GDP and derived GDP arises from the deviation of actual added value from the coefficients.

SOURCE: Based on Central Bureau of Statistics data.

[13] Defense consumption increased significantly during the second and third quarters, and decreased sharply in the fourth quarter, apparently following the Gaza Disengagement Program.

Table 2.4
Developments During the Year, 2003–05

(seasonally adjusted, quarterly rates of change, in annual terms)

	During year			2003				2004				2005			
	2003	2004	2005	I	II	III	IV	I	II	III	IV	I	II	III	IV
Sources and uses															
GDP	2.9	5.4	5.0	4.5	-0.4	4.1	3.5	5.2	4.1	5.9	6.4	3.9	6.4	4.0	5.6
Business-sector product	4.5	7.5	6.3	7.2	0.1	5.3	5.8	7.1	6.0	7.5	9.3	4.4	7.6	6.1	7.0
Private consumption	3.4	4.8	2.7	-6.8	8.3	9.0	3.8	5.0	1.9	0.8	11.8	-0.6	6.7	4.1	0.8
of which Excluding durables	2.8	4.1	2.8	-6.3	8.6	4.9	4.5	4.0	2.3	1.0	9.3	1.1	5.5	4.4	0.2
Public consumption	-4.8	-0.7	1.0	-1.5	-14.9	2.6	-4.6	0.6	-4.5	1.9	-0.6	5.0	6.3	-2.5	-4.4
Fixed capital formation	-5.1	4.2	1.8	-1.8	-5.0	-10.8	-2.6	15.6	-13.0	-2.7	20.2	-9.5	14.8	3.3	0.2
of which Nonresidential	-6.6	9.3	2.2	-3.2	-2.6	-12.2	-8.2	24.9	-10.6	-1.5	29.6	-13.0	20.6	4.5	-0.4
Residential	-0.1	-9.8	1.5	3.2	-8.7	-5.9	12.1	-7.2	-17.4	-5.7	-8.4	4.1	4.2	-2.1	-0.2
Exports[a]	8.2	19.3	-0.2	6.2	-1.6	21.5	8.0	36.0	17.3	6.8	19.0	-1.2	5.5	5.4	-9.6
of which Excluding diamonds	8.6	20.7	2.9	8.1	-9.6	32.2	7.7	34.4	19.1	14.7	15.6	2.5	5.9	8.9	-5.3
Tourism exports	60.1	1.2	43.1	-12.0	22.2	111.1	189.4	2.1	10.1	3.3	-9.7	56.7	47.3	32.9	36.6
Goods exports	6.1	16.6	-2.8	-1.2	3.7	12.6	9.8	40.8	9.3	-0.2	20.2	-2.4	2.7	6.8	-16.6
Uses	2.0	7.6	2.9	-3.0	-2.0	11.8	1.9	10.8	3.6	7.9	8.4	1.9	8.1	4.3	-2.4
Imports	0.8	13.1	-1.4	-15.1	-1.7	18.2	4.6	28.9	2.6	9.7	12.6	-1.7	14.0	-2.6	-13.6
of which Defense imports, ships and aircraft and diamonds	3.1	14.1	1.5	-8.4	6.5	16.8	-0.8	33.4	6.7	1.7	17.0	1.1	11.1	2.4	-7.9
Domestic uses	-0.0	3.7	4.2	-5.4	0.9	6.9	-2.2	4.9	-0.1	6.1	3.9	3.7	9.0	3.7	0.6
Unemployment rate[b]				10.7	10.5	10.9	10.8	10.9	10.5	10.1	9.8	9.2	9.1	8.9	8.8
Average hours worked by Israelis in business sector[c]				-8.0	-0.9	5.0	-4.5	0.7	-4.1	-4.3	3.6	4.5	4.1	-6.0	-20.4
Manufacturing production index	1.6	5.0	9.0	-0.2	-1.6	0.4	11.6	11.9	3.1	10.3	7.0	0.9	1.7	8.3	6.5
Composite index	3.0	7.5	5.6	-3.5	0.9	4.7	6.1	8.3	6.5	7.5	8.7	4.1	6.9	5.2	5.7

[a] Excluding receipts from factors of production abroad and public-sector interest receipts from abroad.

[b] These data refer to levels, not to rates of change.

[c] Quarterly data based on National Accounts data and Labour Force Survey of the Central Bureau of Statistics.

SOURCE: Based on Central Bureau of Statistics data.

The rate of growth in domestic public consumption was less than that of activities and slightly less than population growth.

The growth of domestic public consumption during 2005 was less than that in activities and slightly less than the growth in the population, and the deficit (cyclically adjusted) decreased, (as explained in the chapter on the public sector), that is, during the year a restraining policy was adopted vis-à-vis consumption expenditures. In addition, transfer payments per capita continued to decrease. However, relative to year 2004—a year in which public demand and public services output decreased, and the even sharper decrease which was recorded in the current transfer payments—the fiscal reduction during the year was more moderate. The factors are noted especially in the direct influence of the public sector on the labor market: after a decrease in the number of public service employees in 2004, employment increased in 2005 by 4.1 percent—over and above the increase in the labor force; in addition, this was accompanied by a policy which reduced both direct and indirect taxes, changes that contributed to expand the supply side and to accelerate the increase in potential GDP. The reduction in the ratio of debt to output, and expectations of a decrease in the near future, as a result of the long-term implementation of changes that have continued during the last few years in public expenditures policy, supported a decrease in interest rates for all periods. The decrease in the deficit and the manner in which it was financed (mainly from the proceeds of privatization) lowered the cost of business-sector funding.

Export growth was similar to the growth in world trade. The rate of growth in goods exports is less than that of exports of services.

Exports (excluding diamonds) increased by 7.8 percent, similar to the increase in world trade, this after an even-greater increase during 2004. The rate of increase in manufacturing exports, totaled 5.4 percent, and exports of service sectors grew by 11.7 percent—continuing a trend that started in 2003, which saw an increase in service sectors exports greater than that of the good sectors. Exports of services expanded quickly because of strong expansion in the high-tech sectors such as software services and research and development, and the tourism sector; the decrease in the rate of growth in exports of goods compared with 2004 is in line with the decrease in the rate of expansion of world trade, but is actually greater.

Despite the rapid year-on-year growth of exports, there was a slowdown during the year.

Despite the high average annual increase, a look into the expansion of exports and its components during the year points to a significant slowdown during the year: industrial exports did not increase during the year, and the rise in service exports slowed to 7.2 percent.

The share of services in GDP is increasing in Israel, as in other advanced economies. This long-term process is reflected also in an increase in their weight in exports.[14] These developments have also have significant implications for imports, as unlike goods exports, which involve the import of raw materials, in the case of service exports demand for imports is lower; accordingly the direct relationship between exports and imports is weakened, and the added value inherent in total exports increases.

An analysis of export of goods by high-tech concentration shows that the leading components of exports from Israel—the high-tech component, whose weight in exports of goods (excluding diamonds) is close to 40 percent—increased by a pleasing 9.8 percent. This component was characterized by double-digit growth over every second

[14] The year 2001 was an exception—the result of especially high exports in tourism and start-ups in year 2000.

half of each year during the 1990s, and increased by a significant 23 percent during 2004; the lower increase in 2005, against the continuing boom in the sector around the world, indicates that the factors of supply have started to limit its growth.

As in 2004, the fastest increase was recorded in tourist services exports, thus the improvement in the security situation was internalized also abroad, and it is possible that this has an indirect effect also on the components of other exports.

b. Supply of business-sector product

Business sector product increased sharply, as did total factor productivity and labor productivity.

Business-sector product increased sharply at 6.6 percent, higher than the rate of growth in production factors, such that the trend of an increase in Total Factor Productivity and in labor productivity continued (Table 2.5). The high rate of growth of Total Factor Productivity in the last two years is mainly the result of a cyclical increase in the utilization of capital and labor resulting from changes in demand, and accordingly is reflected in the low rate of increase in Total Factor Productivity during 2000-2005 of less than 1 percent per year. However, the cycle has not yet been completed, and the utilization of capital is still low relative to 1999. The main reason for the increase in product per employee during the last five years, is the increase in the capital/labor ratio: this situation, where the increase in output results mainly from a backlog in factors of production, points to slower technological advancement, and perhaps even to a structural problem in Israel's economy.

Table 2.5
Supply of Business-Sector Product, 2000-05

(volume rate of change, percent)

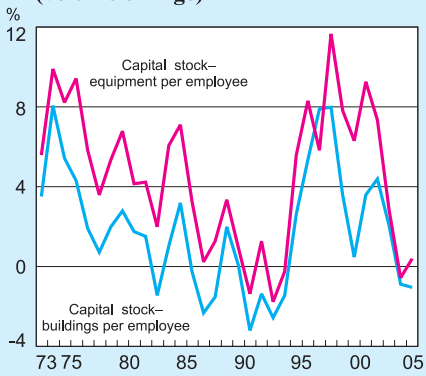
	2000	2001	2002	2003	2004	2005
Gross capital stock	7.7	7.1	5.6	4.0	3.0	2.8
Labor input[a]	4.5	-2.0	0.2	0.3	1.3	3.4
Civilian labor force incl. foreign workers[b]	3.6	0.6	0.1	1.4	1.4	2.4
Total Factor Productivity[c,d]	4.0	-2.4	-5.1	1.0	4.3	3.3
Rate of return on gross capital (%)	12.4	9.8	7.9	9.5	10.7	11.8
Actual tax rate on non-wage income (%)[e]	24.1	39.9	21.3	19.9	20.0	21.0
Real yield on 10-year bonds (%)	5.5	4.9	5.2	4.9	4.2	3.6
Average real ex post interest (%)[f]	10.1	7.1	8.8	11.9	6.9	5.9
Unit labor cost	-1.1	3.5	0.5	-4.4	-2.7	-1.9
Labor share	62.6	63.8	62.3	59.6	58.3	57.7
	1961-1970	1970-1980	1980-1990	1990-2000	2000-2005	
Total factor productivity	4.9	2.5	2.1	0.4	0.8	

[a] See notes to Table 2.A.15.
[b] The labor force plus the labor inputs of Palestinian and foreign workers, in accordance with their share in the business sector.
[c] Productivity level is calculated as the residual by deducting the rise in inputs (labor and capital) from business-sector product weighted by the production function (see note d).
[d] A factor input unit is weighted at 68 percent labor and 32 percent capital.
[e] Taxes on non-wage income as share of non-wage income in business sector (including executives' pay).
[f] Weighted cost of unindexed credit, CPI-indexed credit, and foreign-currency-indexed credit, deflated by actual inflation.
SOURCE: Based on Central Bureau of Statistics data.

The high productivity growth was mainly the result of cyclical factors.

In addition to the cyclical factors and technological changes, it is possible that part of the high growth in productivity in 2004 and 2005 was achieved through efficiency steps taken by firms, such as cutting back on shadow unemployment—steps that are generally taken during a deep recession. An additional factor for the increase in productivity during the last few years is the flexibility in labor market, which improves the match between workers and firms, and accordingly contributes to a decrease in the cost of labor. During the cycle, unit labor cost dropped sharply, such that the labor share (as a percentage of GDP) dropped from 62.6 percent in 2000 to 57.7 percent in 2005. Yet, it is possible that this sharp decrease is explained also by the lag in wage response to the increase in activity, but the strong decrease may point out that its share results from permanent factors.

Figure 2.5
Capital per Employee in the Business Sector, 1973–2005
(volume change)

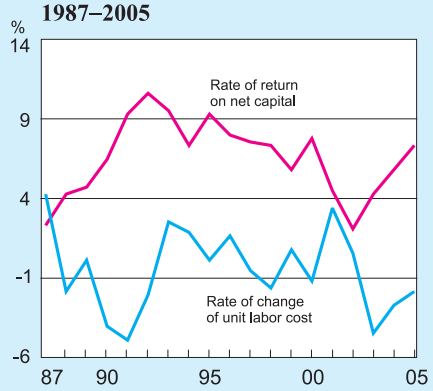


SOURCE: Based on Central Bureau of Statistics data.

Long-term analysis of productivity growth in the business sector points to relatively slow technological progress.

The long-term analysis of Total Factor Productivity in the business sector points to, as stated, slower technological advances vis-à-vis the past, and a multi country comparison indicates that it is low also vis-à-vis OECD countries. A sector analysis of the reasons point to a more serious problem in non-tradable industries. (See the discussion on principal industries, further on in this chapter, Box 2.3). As the leading export industries of the Israeli economy—the high-tech industries—are always increasing their share of world trade (see the chapter on the balance of payments), and the Israeli economy is open to imports, the cause of the problem is apparently in the less tradable industries—such as construction, transportation, services and trade—or in the manufacturing sectors that manufacture products with low tradability (such as building materials). Apparently, in an economy such as ours that is open to flows of production technology, there is no reason for any technological backwardness, but it is possible that factors exist that prevent the adoption of new production technologies. Thus, it is possible, that the multitude of foreign workers, who are prepared to work for wages lower than those of local workers do, creates a negative incentive for investment in equipment and in the technology of production; this hypothesis is supported by

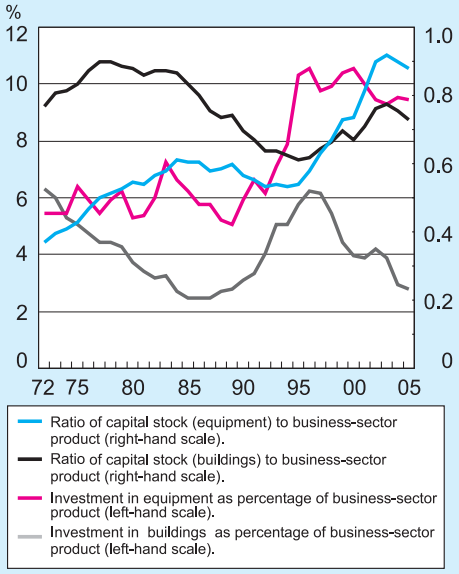
Figure 2.6
Rate of Return on Net Capital,[a] and Rate of Change of Unit Labor Cost in the Business Sector, 1987–2005



[a] Excluding roads.

SOURCE: Based on Central Bureau of Statistics data.

Figure 2.7
Ratios of Investment and Capital Stock, by Component, to Business -Sector Product, 1972–2005



SOURCE: Based on Central Bureau of Statistics data.

the low levels of industrialization and labor productivity in the construction industry.[15]

The rate of growth in capital stock decreased, and capital stock to employee ratio also decreased, for the second consecutive year.

The rate of growth in capital stock, which for the fifth consecutive year is decreasing, was only 2.8 percent in 2005, the result of the low rate of investment in the economy during 2004, and the ratio of capital per employee decreased, for the second consecutive year. Labor inputs grew by 3.4 percent, and consequently, labor productivity increased by 3.2 percent. The increase in labor productivity was accompanied by a lower increase in real wages, such that unit labor cost decreased—this following the sharp decreases in 2003 and 2004, which dragged it to a level lower than that of just before the recession. However, an analysis of developments during the year points to a stepped-up increase in wages, and it is possible that the decrease in unit labor cost which marked the recovery period is close to its end.

The civilian labor force increased by 2.4 percent—a high rate vis-à-vis the last two years—mainly because of the increase in foreign workers, and the participation rate remained steady. The increase in the number of employees was greater than the increase in the labor force, also because of an increase in public sector workers. This was matched by only a small increase in wages—because of labor-market slack, which was reflected in the high rate of unemployment at the beginning of the year—and also supported by a reduction in the tax rates on labor.

Unit labor cost decreased, but at a slower rate than in previous years.

Unit labor cost decreased, for the third consecutive year, but at a rate lower than previous years, and in some sectors, such as manufacturing, even stabilized. It seems that the supply limitations are becoming effective—this conclusion is supported also by results of the Bank of Israel Companies Survey.

Profitability increased significantly during the year, and was helped by a number of factors besides the increase in activities: the constant decreases in unit labor cost reduced the rate of labor share, the minimum wage was eroded in real terms, and the cost of financing decreased during the year, as a result of the decrease in weighted ex post interest rates. These factors worked together to forge significant increases in

[15] See the Bank of Israel 2002 Annual Report, booklet 2 published by the Department of Research, Box A9.

The return on capital, which has increased steadily over the last three years, reached its long-term average.

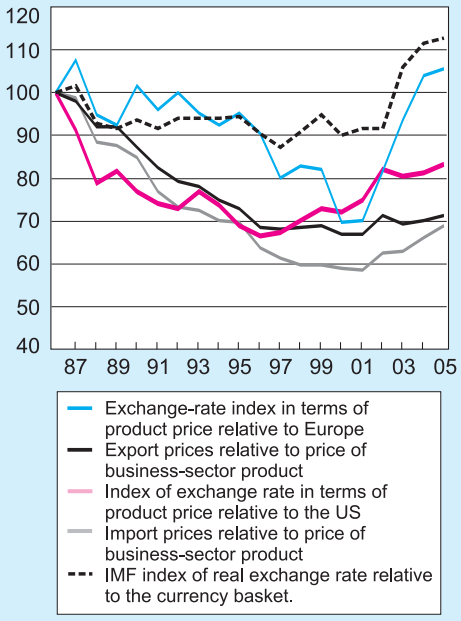
gross return on capital, which has increased steadily over the last three years, reaching 11.8 percent, slightly above the average return during 1994-2003 of 11.6 percent.[16] This trend was also seen in the net return on capital, which reached 7.3 percent. The reduction in company tax rates, as part of a long-term plan, also led to a reduction in the cost of capital and to an increase in net income after tax.

3. DEMAND, SUPPLY AND THE REAL EXCHANGE RATE

GDP prices increased only slightly, and contributed to a real depreciation.

The increase in aggregate demand during 2005 was matched by an increase in supply—results of the cyclical increase in productivity and strong increases in labor input, matched by a mild increase in prices. The fact that labor costs did not become dearer was because of the high rate of unemployment during 2004, which moderated the increase in wages. As a result of the growth in total uses at a rate equal to that of growth of GDP and the flexibility of the labor market, there were no significant forces working to increase the GDP deflator and accordingly it increased at a lower rate of 0.6 percent (annual average). The real depreciation which was the result of the moderate increase in prices points to additional factors of expansion in supply, greater than that which is derived from an increase in demand (as detailed in the previous section).

Figure 2.8
Indices for the Real Exchange Rate, 1986–2005 (1986=100)



SOURCE: Based on Central Bureau of Statistics data.

The real exchange rate was affected by a number of other conflicting factors: strong capital flows into the economy, and the fact that GDP per capita in Israel is high relative to OECD countries (Figure 2.2) acted in the direction of appreciation; on the other hand, the worsening of the terms of trade and monetary expansion, which was reflected by a closing of the interest rate gap, and especially with the US, created forces for a nominal depreciation, and thus—real depreciation in the short run.

[16] During this period, the average return on gross capital in emerging economies of Asia totaled 14.7 percent, South America 12.9 percent, US 9.9 percent and the United Kingdom 7.7 percent. *IMF World Economic Outlook*, September 2005.

Table 2.6
The Real Exchange Rate and World Trade, 2000–05

(rate of change, percent)

	2000	2001	2002	2003	2004	2005
Real exchange rate (export terms)[a]	-3.2	0.0	6.6	-3.0	1.0	1.7
Real exchange rate (import terms)[b]	-1.3	-0.9	6.7	0.8	5.1	3.9
Exchange rate adjusted by GDP deflator vis-à-vis US	-0.9	3.7	9.8	-2.1	1.3	2.4
Exchange rate adjusted by GDP deflator vis-à-vis Europe[c]	-14.9	0.8	16.2	14.9	11.1	1.5
Nominal exchange rate vis-à-vis currency basket	-4.7	1.4	14.2	1.2	2.2	0.0
Real exchange rate relative to currency basket[d]	-4.9	1.7	0.0	15.6	5.4	0.9
Terms of trade[e]	-1.9	0.9	-0.1	-3.7	-3.9	-2.1
World trade, volume growth	12.4	0.2	3.4	5.4	10.3	7.0
World export prices	-3.7	-3.8	0.9	10.4	9.4	-
World import prices	0.3	-3.7	-0.6	9.4	9.4	-

[a] Ratio of export prices (excluding diamonds) to business-sector product prices (including housing services).
[b] Ratio of import prices (excluding diamonds) to business-sector product prices (including housing services).
[c] Members of the European Monetary Union.
[d] Calculated by the IMF by weighting the CPIs of various countries according to the extent of their trade with Israel.
[e] Ratio of export prices (excluding diamonds) to import prices (excluding diamonds).
SOURCE: Based on IMF, IFS, US Department of Commerce, Bureau of Economic Analysis, and Central Bureau of Statistics data.

The real exchange rate level contributed to continued growth in the current account surplus.

There was real depreciation in 2005. This contributed to continued growth in the current account surplus, mainly through a reduction in imports, and actually the increase in imports was less than the increase in activity, this because of the effect of the increase of its relative price.[17] For the last few years, changes in the real exchange rate have been relatively minor, such that the sharp depreciation of 2002 has been preserved.

The indices point to another real depreciation during 2005 (Table 2.6), but it seems that some indices, especially those based on the ratio of prices of output to prices of product, are biased upwards;[18] yet also indices that are based on the relationship, between local and foreign, of private consumption prices or output prices, point to a real depreciation, yet at a lower rate.

[17] The research study showed that the main effect of real depreciation is via a reduction in imports, and in the short run does not contribute to an increase in exports. See. Y. Lavi, A. Friedman (2005), "Real Exchange Rates and Foreign Trade of Israel, Discussion Paper 2005.10, Research Department, Bank of Israel (Hebrew).

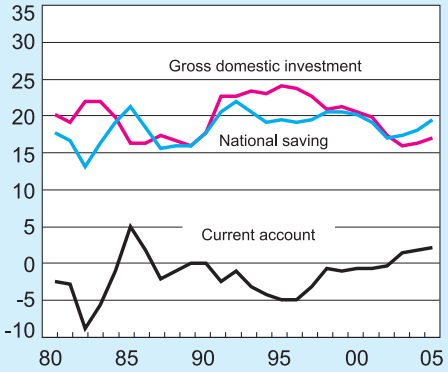
[18] The sharp increase in the world prices of fuel and raw materials cause a distortion, as the prices of output increased as a result of the increase in the prices of inputs, a change which works for a significant increase in the prices of imports, but also for exports.

4. SAVINGS, INVESTMENTS AND THE CURRENT ACCOUNT

Gross national savings increased, as a result of an increase in public savings.

Gross national savings increased during 2005—result of an increase in public savings, which was offset only partially by a decrease in private savings—and equals 19.4 percent of total income of the economy (national product plus unilateral transfers). This increase financed the entire increase in gross domestic investments, the share of which in total income increased to 17.2 percent. The net current account showed a net surplus of 2.2 percent of total income in the economy.

Figure 2.9
National Saving Rate, Gross Domestic Investment, and the Current Account, 1980–2005
(percent of total national income, at official exchange rate)

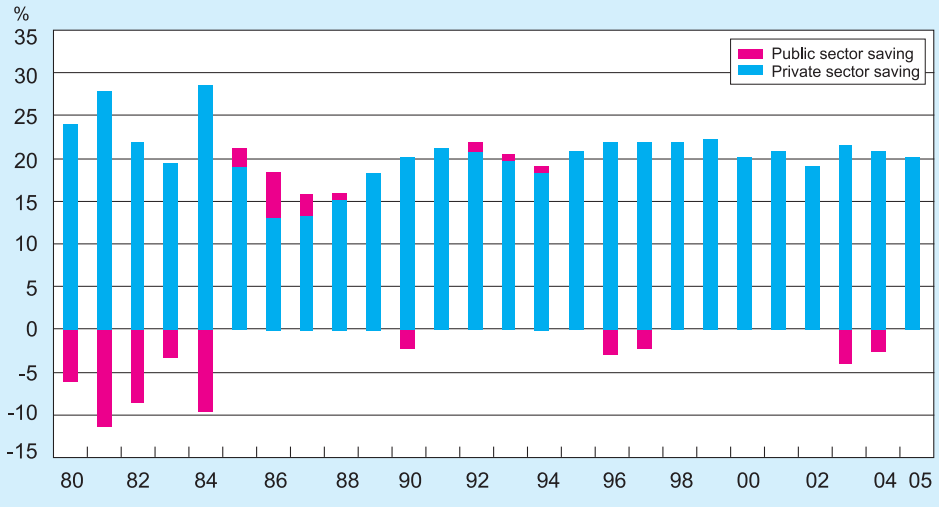


SOURCE: Based on Central Bureau of Statistics data.

The transition from deficit to surplus in the current account from 2003 onwards points to the economy's maturity.

From 1998, savings and investments have moved together, as in a closed economy, while closing the deficit in the current account and creating a current account surplus from 2003 onwards. This points to the economy's maturity—beyond the status of an emerging economy, where capital stock is low and the rate of investment is high, to a maturing economy, where the rate of investment is even lower. While the quickened pace of capital accumulation put constant pressure on the current

Figure 2.10
Gross National Saving Rate, by Sector, 1980–2005
(percent of total national income, at official exchange rate)



SOURCE: Based on Central Bureau of Statistics data.

account, in the last two years this course has slowed, and the rate of increase in capital stock in primary industries has decreased to 3 percent—a surplus was created in the current account.

However, on the basis of individual checks of part of the components of investment (Box 2.1) the rate of investment is somewhat lower than that of the long run, the net International Investment Position (IIP) of the economy is still negative, and after deducting unilateral transfers, the deficit in the current account is still significant, such that it is still early to say that the economy of Israel has reached a sustainable equilibrium in the current account.

5. PRINCIPAL INDUSTRIES

I. Main developments

The increase in the activity of the business sector continued in 2005 with output growing by 6.7 percent.

In 2005 the expansion of activity in the business sector continued and encompassed all industries in the economy, apart from construction whose output stabilized. The improvement in the security situation and the recovery in global demand for high-tech products, in which Israel specializes, led to an improvement in the expectations of individuals with regard to the future economic situation and as a result to an increase in local demand. In turn, the growth in local demand initiated a process of rapid convergence toward full utilization of the economy's productive capacity. In short, the growth in demand increased output, the increase in output increased private income, the increase in income raised demand and so on and so forth. This process, which began in late 2003, continued this year as can be seen from the sharp increase in demand and output in the various industries of the economy, particularly those producing for the local market (commerce, services, transportation and communication). The combined output of these industries, which accounts for close to two-thirds of business sector output, grew at a rate of 5.6 percent.

The rate of growth in exports slowed significantly this year.

The rate of growth in exports slowed this year. The process of convergence to full employment usually constrains growth in the tradable goods industries due to the increase in the prices of factors of production. Although there was no such increase in the real exchange rate this year (and it even depreciated somewhat), the rate of increase in exports slowed this year. Within the export of services, the slowdown in the export of "other services", which has a high component of value added, was particularly noticeable. This category includes the export of R&D services, which fell relative to last year, and the export of computer services whose growth abated during the year. The growth in manufacturing exports slowed relative to the increase in world trade and relative to last year. The slower growth in manufacturing exports together with the acceleration of growth in labor input and investment are an indication of the full utilization of productive capacity in the export industries which implies that the effective constraints on their expansion are now on the supply side. The analysis of specific manufacturing export industries shows that expansion has not been uniform

in all industries. Thus, the export of industrial chemicals and fertilizer and electronic components, which constitute one quarter of manufacturing exports, fell by 10 percent. The electronic communication equipment and textile industries lost market share which was part of the long-run global shift in production from the developed to the developing countries which have lower labor costs. In contrast, the export of pharmaceuticals, control and monitoring equipment and medical and scientific equipment—all of which are technology-intensive goods produced by highly-skilled workers—were characterized by high rates of growth. The export of plastic and metal goods, which are more traditional industries, also grew significantly as a result of the increase in global demand.

The factors that led to the increase in output were best reflected in the accelerated expansion of the commerce and service sectors.

The leading factors in the growth of output this year were reflected in the accelerated expansion of the commerce and service industries. Thus, the improvement in the security situation led to a substantial recovery in the export of tourist and hotel services. The growth in private consumption led to significant expansion in the commerce industry and the personal services industry (catering, health, etc.) while the growth in the activity of the business sector led to an increase in the output of business services (legal, accounting, real estate agencies, etc.) and the growth in financial intermediation services. The output of financial intermediation services grew even faster than business output as a result of the substantial expansion in the volume of financial intermediation—in credit and in the value of assets—and the growth in revenues from commissions that resulted from, among other things, the sharp increase in the volume of trading on the stock exchange and the increase in the value of shares. The increase in capital raised by the venture capital funds last year led to an increase in the activity of start-up companies.

Table 2.7
The Principal Industries, 1995–2005
(rate of change, annual terms, constant prices)

	2005					1995-2004					
	Industry weights[a]	Product	Labor input	Capital	Monthly wage per employee-post[b]	Product	Labor input	Capital	Total productiv-ity	Labor produc-tivity	Monthly wage per employee-post[b]
Total business sector	100.0	6.6	3.6	2.8	1.8	2.9	2.2	6.6	-0.7	0.7	1.5
Commerce and services[c]	56.3	6.0	4.2	2.8	2.6	3.7	4.5	11.1	-3.1	-0.8	1.5
Manufacturing	20.4	4.0	1.9	3.5	2.1	1.8	0.1	5.8	-0.2	1.8	0.6
Transport and communications	10.6	5.9	4.8	2.3	0.0	3.9	2.5	6.9	-0.7	1.3	-0.2
Construction	2.5	-0.2	-3.5	-0.9	0.2	-1.7	-1.9	7.3	-1.3	0.2	0.7
Agriculture	2.5	13.8	3.5	0.9	1.3	4.7	0.3	-0.1	4.5	4.3	2.4
Electricity and water	3.4	7.0	5.8	3.2	6.7	3.3	0.4	4.1	1.3	2.9	1.5

[a] Excluding imputed banking services, errors and omissions.
[b] Excluding Palestinians. From 2003 excluding foreign workers.
[c] Including commerce, catering and hotel services, and financial, business, and personal services.
SOURCE: Based on Central Bureau of Statistics data.

The recovery in economic activity has yet to trickle down to the construction industry and its output remained unchanged this year. Rental prices and the prices of owned housing declined this year which is evidence of the continuing decline in the demand for housing services (and for housing as an asset). The decline in residential construction resulted primarily from the sharp decline in government-initiated construction. At the same time there was a substantial recovery in private construction which was manifested in the increase in demand for relatively expensive apartments and the fall in demand for cheaper apartments. This phenomenon was reflected both in the price of second-hand housing and the decline in sales of apartments that were built at the initiative of the public sector and which are located in the periphery (including the periphery of the center and Jerusalem) and the increase in sales of apartments built by the private industry in areas of high demand. The continuing weakness in activity and the prices of cheap housing was the result of several factors: the drop in income among the weaker segments of the population, the cutbacks in direct assistance to those same groups in purchasing a home and government support for the housing market in the periphery during the recession which led to an enlarged inventory of unsold apartments. The continuing stagnation in the construction industry this year was also the result of the sharp drop in the construction of industrial, business and hotel structures which was surprising in light of the general improvement in the economy.

The recovery in economic activity has yet to trickle down to the construction sector whose output continued to decline.

An analysis of the supply side of the various industries of the economy requires a long-term view since in the short run output is determined primarily by the changes in demand (particularly when the economy has a surplus of productive capacity as was the case in recent years). There were a large variety of factors influencing the supply side and of particular importance were the infrastructure industries—transportation, communication, electricity and water—which have a major influence on the productivity of other industries. In recent years, important reforms have been carried out in the economy with the goal of expanding supply. In the transportation industry, large budgets have been allocated to improving infrastructure with preference given to Israel Railways and light rail in the large metropolitan centers. In addition, it was decided to increase competition in the airline industry. In the communication industry, there has been rapid technological development which has brought down the costs of transferring data, sound and video. These technologies have increased the welfare and productivity of the economy although this has not always been translated into an increase in the output of the communication industry.

In recent years, important reforms have been implemented in the transportation and communication sectors with the goal of increasing supply.

II. Developments in selected industries

a. Manufacturing

Manufacturing output, which accounts for one quarter of total business output, grew this year by 4 percent which constituted a slowing of growth relative to last year's growth rate of 7.0 percent. The slowdown in manufacturing output was totally the

The slowing of growth in manufacturing output this year was solely the result of the slowdown in manufacturing exports.

Table 2.8
Manufacturing Industry, Main Indicators, 1990–2005

(rate of change, percent)

	1990-2000[a]	2001-2003[a]	2004	2005
Manufacturing product	5.9	-1.1	6.9	4.0
Domestic sales (volume)	4.3	-2.2	1.4	3.0
Manufacturing exports (volume)	11.5	-1.3	16.8	4.5
Output of electronics industry	10.6	-5.2	12.2	5.2
Output of traditional industries	3.8	-2.8	2.7	2.2
Output of mixed industries	5.2	5.3	8.1	5.1

[a] Annual average change.
SOURCE: Based on Central Bureau of Statistics data.

result of the slowdown in manufacturing exports. The slowdown in exports was substantial both relative to the rate of growth last year and to the growth in world trade. The growth in exports halted completely during the year and its level in the last quarter was even lower than that in the same quarter last year. In contrast to the slowdown in exports, there was somewhat of an acceleration in manufacturing sales to the local market which grew by 3 percent as a result of increased local demand (about one half of manufacturing product is sold locally). The share of the high-tech electronics industries in manufacturing output did not increase substantially and the share of traditional manufacturing, whose output is primarily destined for the local market, did not decrease substantially. However, the output of the control and monitoring equipment and medical and scientific equipment industry and that of the pharmaceuticals industry, both of which are intensive in human capital, grew rapidly this year.

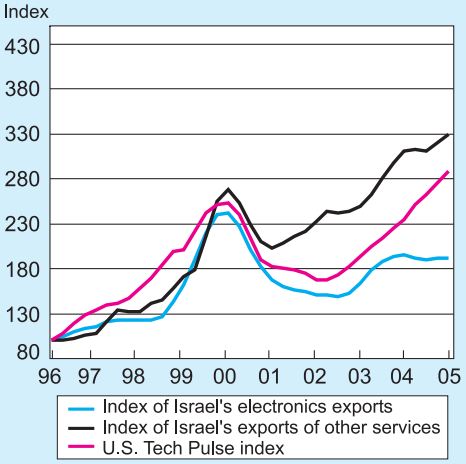
The slowdown in the rate of growth in manufacturing output was the result of the full utilization of the factors of production (capital and labor) rather than a shortfall in demand.

The slowdown in the rate of growth of manufacturing production was the result of the full utilization of the factors of production (capital and labor) rather than a shortage of demand. This can be seen from the sharp drop in the number of manufacturing companies which reported (in the Bank of Israel's Survey of Companies) that the volume of domestic and foreign orders was the constraint on the expansion of their activity. At the same time companies reported an increase in the utilization of capital and during the second half of the year there was an increase in the number of companies that reported a shortage of skilled workers as the constraint on the expansion of their activity. The increasing predominance of supply- side constraints was particularly noticeable in the export industries. Thus, while last year this constraint was not an effective one and the production of the export industries grew substantially with almost no increase in the factors of production; this year there was a substantial slowdown in these industries which was accompanied by an increase in labor and capital inputs. The export industries are intensive in skilled and highly educated workers, among whom unemployment is low (Table 5.6). This has made it difficult for them to increase supply and has tended to increase the cost of labor. The cost of an hour of labor

in manufacturing as a whole went up by 2.5 percent this year (in real terms, discounted by the CPI) and would have gone up even more had there not been an increase in the number of new workers who earn less than the average.

Exports: An analysis of exports relative to US trade, which is a convenient measure of changes in global demand, showed that the growth in exports lagged behind that of total US trade. Thus, the growth of trade between the US and Europe (the developed countries) was more rapid than that of total US trade and the lag in Israeli exports relative to that measure was even larger. This year the variation within the growth of exports was particularly noticeable. Thus, among the industries that managed to increase

Figure 2.11
Israel's Exports of Electronics and Other Services compared to the U.S. Tech Pulse Index,[a] December 1996 to December 2005



[a] The Tech Pulse Index is a combined index that tracks the US technology sectors.

SOURCE: Based on data from the US Federal Reserve and the Central Bureau of Statistics.

The growth in exports lagged behind the total volume of US trade and the growth in trade between the US and Europe.

Table 2.9
Israel's Total Exports and US Total Trade, 2005

(dollars,rate of change, percent)

		2005-2001[a]		2004		2005	
	Share of manufactured exports	Israel's total export	US trade	Israel's total export	US trade	Israel's total export	US trade
Total manufactured exports	100.0	7	8	22	16	7	13
Total excl. electronics	68.7	11	8	22	16	10	14
Electronics (excl. Electronic components)	24.1	3	8	25	19	5	13
Electronic communications	12.1	-4	9	20	22	-1	18
Equipment for control and supervision and medical and scientific equipment	12.0	13	7	30	15	10	7
Electronic components	7.1	-10	-1	12	8	-10	-4
Chemicals, fertilizers and pesticides	10.6	9	13	24	16	-9	10
Pharmaceuticals	6.2	29	16	34	13	49	8
Rubber and plastics	6.4	11	10	18	14	6	13
Textiles	3.8	4	6	13	10	-1	6

[a] Annual average change.

SOURCE: Based on Central Bureau of Statistics and US foreign trade data.

their share are the pharmaceuticals industry, which grew at an unprecedented rate, as well as the control and monitoring equipment and medical and scientific equipment industry, which specialize in the production of technology-intensive and innovative goods. Most of the other industries lost market share, particularly the chemical industry whose market share grew substantially last year and the electronic communication equipment industry which continued its long run decline.

Figure 2.11, which presents Israel's high-tech exports (the export of electronic goods and the export of others services which mainly involve information technology – trend data) relative to the index of this industry in the US, shows the continuing recovery of activity in the industry in the US and its contribution to the recovery of the information technology industry in Israel. While during the late 90s, Israel's relative advantage in the production of goods that are intensive in human capital was reflected in a sharp increase in the share of the electronics industries in total exports, in recent years Israel's relative advantage has been reflected in the continuous increase in the export of services that are intensive in human capital while part of electronics production has been shifted to the developing countries. The competition from developing countries has particularly hurt the electronic communication equipment industry which employs a relatively large proportion of skilled workers. In comparison to 2001, Israel's exports from this industry have declined by 13 percent while US trade (calculated according to Israel's trade weights) has increased by 18 percent. An analysis of the sources of US imports shows that the production in this industry is indeed being shifted to developing countries. Thus, the average per capita output of exporters to the US[19] has declined from about $20,000 in 2000 to about $12,500 in 2005. In contrast to the real decline in the export of electronic equipment, the exports of industries which are intensive in human capital grew. Thus, most of the increase occurred in the export of "other services" which has grown rapidly in recent years and which includes, among others, computer services, R&D services and the services of the electronics industries. A small proportion of the growth can be attributed to manufacturing exports from the control and monitoring equipment and medical and scientific equipment industry[20] and the pharmaceuticals industry. What is common to all these industries is the small component of production, the critical component of knowledge and innovation and the fact that competition is primarily with producers in the developed nations.

The acceleration in sales to the local market was the result of the moderate acceleration in demand and the change in its composition.

Manufacturing sales to the local market grew in 2005 by 3 percent following an increase of only 1.3 percent last year and a decline during the recession years. The acceleration in sales to the local market is explained by the growth in demand and the variation in growth rates between the various components of demand. Thus, demand shifted to government defense consumption this year in contrast to last year when demand was directed at durable goods, which are primarily imported. In the long

[19] Weighted by the shares of electronic communications equipment exporters in US imports.

[20] This industry is the most intensive in human capital among the manufacturing industries. The per capita output of a representative exporter to the US is very high at about $27,000.

run, manufacturing sales to the local market have grown at a much slower rate than total output. There are two main reasons for this trend: First, there has been a change in the composition of private demand which involved a decline in the proportion of goods and an increase in the proportion of services. Second, the prices of competitive import goods have fallen relative to the prices of local products. Thus, the ratio of import prices to the prices of local production (the real exchange rate) remained relatively unchanged this year and the growth in (competing) imports was relatively moderate. A more detailed analysis of private consumption, production for the local market and imports that compete with a number of selected manufacturing industries (food, paper and printing and clothing and leather) indicates that sales to the local market and imports grew by similar rates in most cases (apart from the alcohol and tobacco industry in which the growth in the share of imports in private consumption continued). Thus, manufacturing sales to the construction industry, which constitutes close to 10 percent of total manufacturing sales to the local market, grew this year by 6 percent; however, most of the increase occurred at the beginning of the year and was followed by a slowdown. This growth took place despite the stagnation in the construction industry and encompassed most of the subsectors in the industry: raw building materials (cement, plaster, glass and ceramics), wood and metal for construction. Only the growth in stone quarrying and the mining of sand was relatively slow.

The supply side: This year favorable conditions existed on the supply side including the increase in local and foreign demand for the second consecutive year, a low rate of interest, a rising stock exchange, a high unemployment rate, lowered corporate and personal tax rates and a more favorable tax treatment of depreciation. These conditions led to an increase in supply in the export industries which included: the transport vehicle industry, which significantly increased its stock of capital and its number of workers; the electronics, chemical and plastics and rubber industries which increased their number of workers; and the machinery and equipment and textile

The growth in supply of the export sectors this year was due to the significant increase in their activity last year and to macroeconomic factors. In contrast, supply did not grow for those industries producing for the local market.

Table 2.10
Manufacturing Industry, Selected Indicators of Activity, 1990–2005

(rate of change, percent)

	1990-2000[a]	2001-2003[a]	2004	2005
Return on gross capital	16.4	10.3	10.4	10.1
Total productivity	1.5	-1.0	5.2	1.9
Input/output prices	-0.3	1.1	1.4	2.2
Costs per hour worked (real, at GDP prices)	4.7	-0.4	0.9	3.7
Labor productivity	3.4	1.9	6.1	2.7
Labor input (hours)	2.4	-2.9	0.8	1.3
Gross capital stock (end-year)	7.6	3.4	3.2	3.0
Investment	9.5	-6.4	9.3	3.8

a Annual average change.
SOURCE: Based on Central Bureau of Statistics data.

industries in which investment increased substantially. The increase in the factors of production, together with the slowdown in the growth of exports and production in the export industries following the rapid growth last year, indicate that the export industries have exhausted the surplus productive capacity that developed in the recession years and that they are now encountering supply constraints. The situation is different in the industries producing for the local market and in some of them the number of workers declined. An analysis that includes both the export industries and the industries producing for the local market indicates that the impressive recovery in manufacturing activity led to a relatively moderate increase in the number of workers and the volume of investment. Thus, the number of workers in manufacturing grew by only 3 percent relative to two years ago and the average volume of investment during the last two years was only 6 percent higher than in the previous two years.

The profits of producers declined this year due to the increase in the prices of raw materials and in the cost of labor which were reflected in the reduction in the rate of return on gross capital. The prices of inputs continued to increase this year. Thus, the price of gasoline shot up and the prices of metals, plastic, paper and chemicals rose substantially. The increase in input prices was largely the result of the boom in global demand which in fact benefited exporters by increasing the demand for their products (primarily in the chemical, plastic and metals industries) and enabling cost increases to be passed on to consumers abroad. However, an examination of input prices, output and wages in manufacturing as a whole (including sales to the local market) shows that the increase in prices harmed the profits of producers[21] since the increase in the prices of their products on average lagged behind the increase in input prices and wages. Thus, producers only passed on part of the increase in costs to local consumers.

The increase in productivity tended to increase the rate of return on gross capital; however, the profitability of employing workers, which is measured by the cost of labor per unit of output, declined this year since the cost of labor (the real wage in terms of output) increased faster than labor productivity. The increase in the cost per hour of labor encompassed most industries with no exceptional increase recorded in the relative wages in the export industries. However, the wages in the chemical industry and the control and monitoring equipment and medical and scientific equipment industry increased more than wages in other industries and its number of workers also increased. New workers generally earn a lower wage and therefore the increase in the wages of veteran workers was apparently even larger. In contrast, the increase in the average wage in the textile industry (which is also an export industry) simultaneous with a decrease in the number of workers is evidence that it was low-salaried workers who were laid off.

[21] The data show that the price changes reduced the profits of producers this year but no clear-cut conclusion can be drawn from this since the estimate of the increase in input prices is based on the basket of inputs sampled in 1995 which has not been updated since.

b. Construction

The contraction in activity in the construction sector ended in 2005.

The contraction in activity in the construction industry ended in 2005. The stagnation in residential construction and construction for other industries indicates that the significant growth in local demand, which benefited most of the other industries of the economy, had little effect on the construction industry. The conditions that led to a significant increase in private consumption (including the increase in private income) did not lead to a similar increase in the demand for housing services. Evidence of this was the stability in rental prices.[22] The factors that led to a boom in the value of traded assets on the stock exchange (including the fall in the risk premium and the expectations of an improvement in the economic situation) did not bring about an increase in the demand for housing as an asset and the stability in housing prices is evidence of this. It is difficult to explain the low price levels for housing as an asset

Table 2.11
Construction, Selected Data, 1990 - 2005

		Annual average change (percent)				
	2005	1990–96	1997–2002	2003	2004	2005
Total output (NIS million, 2000 prices)	40,814	13.3	-3.6	-4.3	-8.1	0.4
of which Residential	19,524	12.0	-5.4	-3.9	-2.2	-1.2
Nonresidential	17,353	18.0	-2.5	-7.4	-13.5	-0.2
Defense construction	2,490	0.7	4.3	23.4	-15.2	26.8
Change in construction product		15.2	-3.0	-2.2	-6.7	-0.2
Apartments under construction ('000)	54.8	18.8	-8.3	-5.1	-6.5	-4.6
Residential starts ('000 units)	29.6	17.0	-9.2	-5.3	-8.0	2.2
Residential completions ('000 units)	31.7	13.0	-4.9	-11.0	-4.6	-3.5
Apartments offered for sale ('000)	18.2			-5.3	-5.2	-7.7
Total employees ('000)[a]	188.3	9.8	-2.7	-1.9	-5.4	-2.3
Real wage per employee post[b] (2000 prices)	5,745		1.5	-0.7	0.2	2.3
Apartment prices relative to CPI		7.6	-2.2	-6.3	-0.3	-1.0
Rent prices relative to CPI		13.1	2.5	-4.1	-1.6	-2.8
Input prices relative to CPI		-1.6	-0.2	3.5	5.2	3.3
Average mortgage interest rate[c]			6.1	6.0	5.1	4.4

[a] Includes an estimate of unreported foreign workers.

[b] The real wage is the nominal wage adjusted by the CPI. Until 2002 this was calculated from the wages of Israelis and foreign workers, and from 2002, from that of Israelis only.

[c] Annual average; actual rate, not change.

SOURCE: The Central Bureau of Statistics.

[22] The change in the price of rentals primarily reflects the change in the demand for housing services (an increase in income, population growth, etc.) since the supply of housing is inelastic in the short run.

but, together with the increase in input prices, they explain the continuing stagnation in the industry. During the last three years, housing prices have declined relative to input prices by a cumulative 18 percent and the profits of contractors have been significantly eroded. Although the second half of 2005 was a turning point at which the prices of housing and rentals began to rise, the increase in prices was moderate and did not match the intensity of the economic recovery (in fact prices only returned to their levels of late 2004). In short, the price increases were insufficient to initiate a recovery in the industry.

The growth in demand for housing services was more moderate than that implied by the increase in population, income and the value of shares.

Population growth and the level of income are the two variables that have the largest effect on the demand for housing services. Although during the last two years, there was somewhat of a slowdown in population growth, it is insufficient to explain the drop in demand. The number of housing completions this year (about 32,000) and the number of housing starts (about 30,000) were lower than the levels consistent with the demographic increase (which was estimated at about 35,000 apartments). This estimate is based on the ratio between the increase in the inventory of apartments to past growth in population and on the average number of individuals in a household (according to which an increase of 3.3 individuals creates demand for one house). However, one can explain the difference through the age composition of the increase in population and the lack of uniformity in the rates of increase of the various segments of the population. Thus, the rate of increase in the 20–29 year-old age group, which is the relevant one in an analysis of the demand for housing, was slower than that of the total population while the rate of increase was higher among segments of the population that are characterized by high household density. Nonetheless, even if there had been no difference between the increase in the actual supply of new housing and that which is derived from the growth in population, we would still have expected a substantial increase in the prices of housing services and of housing itself as a result of the continuing increase in national income and the decline in the rate of unemployment (which works to increase the demand for housing services) and as a result of the improved security situation which works to increase the demand for housing as an asset (directly in areas which have been subject to terror attacks and indirectly through the lowering of mortgage interest rates as a result of the economy's lower risk premium).[23]

During the last two years, there has been much variation in the movement of housing prices: Prices of cheap housing have declined while the prices of expensive housing have increased. This is the result of opposing trends in the demand for the two types of housing.

During the last two years, there has been a great deal of variation in the movement of housing prices. This can be seen in the decline of prices of cheap housing and the simultaneous increase in the prices of expensive housing. This is based on data from the Survey of Owner Occupied Housing Prices which was carried out by the Central Bureau of Statistics and which classifies housing into 27 groups according to size (number of rooms) and location (the three largest cities and the Dan region, the center, the South, the North, the Sharon and the Haifa region). The survey found

[23] The increase in the tax rate on interest income and capital gains from the stock market also increased the relative profitability of investment in housing.

that for apartments whose average prices were above the median during the last two years prices rose by 6.2 percent while for apartments below the median prices fell by 4.3 percent and that the difference between the groups was statistically significant. According to a different test, which was based on the price list of housing published by the assessor Levy Yitzhak, the variation in housing prices was less pronounced with an increase of 6.5 percent (in dollar terms) for housing above the median and an increase of 2.2 percent for housing below the median (with half of the differential developing this year and half last year.) It was also found (with statistical significance) that the magnitude of the increase in prices increased with the value of the house.

The increase in the prices of luxury housing[24] is evidence of an increase in demand which is consistent with macroeconomic developments. The decline in the prices and demand for cheap housing may be the result of a number of factors including the increase in economic inequality. During the last two years, the share of the lowest five deciles in total disposable income has declined while the share of the top three deciles has risen[25] (according to the 2004 Survey of Income). In addition, the direct assistance to new homebuyers in the weaker segments of the population has been cut back.[26] Another possible reason is related to the process of absorption of immigrants who arrived in Israel in the 90s. The arrival of these immigrants, who had almost no assets, led to a significant increase in demand for basic housing. Its supply expanded accordingly, thus increasing the proportion of cheap housing in the total stock of housing. (During the 90s, 40 percent of residential construction was initiated by the public sector.) Over the years, these immigrants have sought to improve their housing conditions which has created a surplus of cheap housing.

The difference in the demand for luxury versus cheap housing during the last two years has been reflected in a sharp drop in the construction of government-initiated housing and an increase in private sector construction. The housing built through public initiative has been located in the periphery and in the areas peripheral to the central conurbation and Jerusalem while private construction has been located primarily in the center and rural towns[27] ("Build your own Home"). The decline in the sales of government-initiated housing began already in 2000. In reaction, the government implemented two assistance programs for new homebuyers (one during the second half of 2001 and the other during the second half of 2003) and thus put

The difference in demand between cheap and luxury housing during the last two years has been manifested in a sharp drop in the construction of government-initiated housing and some increase in the construction of housing by the private sector.

[24] During the last two years, the investment by nonresidents in real estate (primarily luxury apartments) has grown substantially from $200 million to $1 billion.

[25] The number of those whose income did not enable the purchase of a basic basket of products (the Index of Absolute Poverty) rose substantially during the years 2001–04. See the section on welfare for further details.

[26] The reduction in the benefits implicit in the mortgages for eligible homebuyers led to a decrease of 30 percent in the number of individuals taking out mortgages. This included the cancellation of eligibility for assistance for those with a low number of eligibility points and the narrowing of the gap between the market interest rate and that available to those eligible for assistance.

[27] The construction as part of "Build your own Home" grew by 21 percent during January–August relative to the same period last year.

off the slowdown in public sector construction. Despite the government's efforts to increase sales, the inventory of unsold apartments (built through public initiative) continued to grow by 1000 units a year in 2002 and 2003. There was no simultaneous drop in housing starts since contractors mistakenly believed that the government would continue to assist them in selling apartments. Eventually, the surplus supply led to a sharp 45 percent drop in the number of housing starts through public initiative (2005 relative to 2003). However, the inventory of unsold apartments has hardly been reduced since the number of apartments sold has fallen substantially.

Non-residential construction increased this year but this was due to the increase in defense-related construction and construction financed by the public sector while the activity of the private sector continued to plummet.

In non-residential construction, there was an increase in activity this year though it was due to the increase in defense-related construction and publicly-financed construction while the activity in the private sector continued to plummet. The private construction of industrial, business and hotel structures, in addition to structures for the communications industry, fell this year by 21 percent and its total share in non-residential construction fell significantly from 29 percent in 2001 to 16 percent currently. In contrast, the construction of transportation infrastructure (roads, railways and ports), which accounts for one third of non-residential construction, rose by 15 percent and construction by local governments, which accounts for one quarter of non-residential construction, rose by 6 percent. Defense-related construction increased considerably as a result of the withdrawal of the army from the Gaza Strip.

This year there was a certain deterioration in the supply side of the construction sector: the number of workers in the sector fell while the real wage and the prices of raw materials increased.

This year the situation of the supply side in the construction industry worsened to some extent. This was reflected in a decrease in the total number of workers and an increase in real wages in the industry.[28] It was also the result of increases in the prices of raw materials. Despite this, the construction companies did not report a tightening of supply constraints apart from a shortage of professional workers during the closure of the Territories (according to the Bank of Israel's Survey of Companies). The reports of the construction companies also indicated that the shortage of credit has not worsened. Apparently the decline in interest rates and the decreased need for credit in the industry weakened credit constraints. The share of credit to the construction industry in total bank credit fell significantly during the last two years which was simultaneous with the drop in the number of houses under construction and the number of completed but unsold houses. However, the share of credit to the construction industry in some of the banks was still higher than 20 percent which exposes them to the risk of movements in the price of housing and requires them to create additional provisions for doubtful debts. The marketing of land for residential construction by the Israel Land Administration has been fairly stable in recent years and the drop this year has still not affected activity.

In recent years, the government has acted to reduce the number of foreign workers and indeed the number of foreign workers (not Palestinians) in the industry has declined by 40 percent relative to its peak during the first two years of the Intifada.

[28] The increase in the Price Index of Construction Inputs was largely the result of the increase in wages.

The decline in the number of foreign and Palestinian workers has meant that Israelis have not been pushed out of the industry. Thus, a comparison of the industry's activity in the last three years to that in the period 1999–2001 shows that the number of Israeli workers in the industry has not declined (and even increased somewhat) even though the output of the industry fell by 14 percent and the total number of workers fell by 20 percent. The replacement of foreign workers with Israelis is relatively easy when the number of workers in the industry is on the decline, unemployment is high and there is no necessity to increase the number of Israeli workers in the industry. The full effect of the replacement of foreign workers by Israelis on the labor costs and supply of the industry will only become clear once the activity in the industry recovers and there is a need to recruit additional Israeli workers.

In recent years, the government has acted to reduce the number of foreign workers and indeed the reduction in their numbers prevented Israelis being pushed out of the sector.

Box 2.3
The increase in the productivity of the economy: an international comparison

An international comparison[1] shows that total productivity in Israel has increased at a more moderate rate than in the developed countries. The lag in output per worker was less pronounced but this was due to the more rapid growth in the capital stock.[2] The growth in productivity reflects the increase in output that is not the result of an increase in the factors of production (capital and labor) and is determined by a number of factors, such as the technology used by firms, the quality of the labor force, the efficiency of the allocation of factors of production in the economy and changes in government policy (the level of competition, the quality of physical infrastructure, etc.). A rise in productivity, as it is measured, is also affected by the business cycle and in order to minimize this effect, productivity is measured over a relatively long period. The productivity of the industrialized countries relates to the years 1989–2003 but in 2003 the Israeli economy was still in a deep recession which resulted from its own special circumstances (the Intifada). Therefore, we calculated productivity in Israel as the average of the changes in productivity for the periods 1989–2003 and 1989–2005.[3]

[1] Total productivity measures the increase in output which is not the result of an increase in factors of production (capital and labor).

[2] The data are for the US, France, Italy, Holland, Norway, Finland, Canada, Austria, Korea and Belgium. These countries were chosen because their data were the most accessible. The stock of capital in any specific year was calculated as the sum of investment in the preceding 15 years and the productivity of the developed nations was calculated as a weighted average.

[3] This is illustrated by the comparison of total productivity in the business sector in Israel between two periods: during the years 1989–2005 productivity fell by 0.14 percent while in the years 1989–2003 it increased by 0.12 percent (annual averages).

An analysis of the change in total productivity in the various industries of the economy[4] indicates that productivity in the business sector in Israel grew by a slower rate than in other countries for most of the industries (apart from agriculture and construction in which the differentials in productivity primarily reflect cyclical and temporary factors) and that the difference was especially large in the transportation and communication industries. An analysis of the growth in productivity in the manufacturing industry in Israel and the US during the 90s (see the 2004 Bank of Israel Annual Report) shows that the lag in productivity is primarily due to the electronics industries and that the lag in the traditional and mixed industries was relatively small.

During the last decade, the industrial structure has changed in Israel such that the share of the commerce and service industries, in which productivity is high, increased and the share of the construction and manufacturing industries, in which productivity is low, decreased. A similar structural change occurred within the manufacturing industry such that the share of the electronics and chemical industries, in which productivity is high, rose and the shares of the traditional industries, in which productivity is low, fell. Despite the structural change in manufacturing and in the business sector as a whole, the increase in productivity was lower than in other countries.

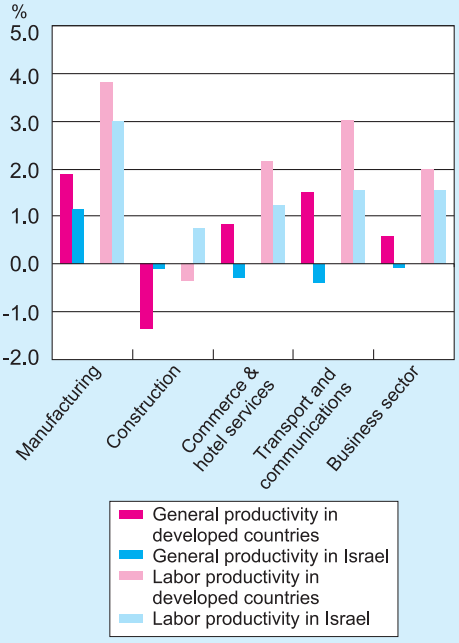
The low growth in productivity is especially disappointing in view of the dramatic increase in human capital in the last decade during which the proportion of educated workers grew by 11 percent and the proportion of educated workers working in an academic or managerial profession rose from 14 to 20 percent (most of the increase was in the manufacturing and communication industries). According to our estimates this increase alone should have increased total productivity in the business sector by 0.7 percent (annual average). Furthermore, during the relevant period, important structural changes were implemented in the economy that were meant to improve the efficiency of the allocation of the factors of production and to improve productivity, including the creation of a more flexible labor market, increased openness to trade and capital flows, encouragement of investment in R&D, a reduction in tax rates, etc.

The identification of the factors behind the low level of productivity in Israel is beyond the scope of this Box. It may possibly be the result of a structural

[4] Productivity in Israel relates to average productivity in two different periods (1989–2003 and 1989–2005); the productivity in the developing countries relates to the years 1992–2003 and is weighted according to the output of each country.

problem in the economy though it may also be related to essentially temporary factors. Evidence of this is the exceptionally large increase in investment in Israel during the relevant period relative to other countries which may have required high adaptation costs. Low productivity may also reflect the fact that the investment has not yet borne fruit. For example, there were large investments in the transportation industry, primarily in the airport and seaports, in the railway and in the Trans-Israel Highway, whose contribution to the productivity of the business sector has not yet been fully realized. However, it is possible that the generous government subsidization that is part of the Law for the Encouragement of Capital Investment has induced investments with a low rate of return which has led to a continuing decline in productivity.

Figure 1
Change[a] in Productivity in Israel and Developed Countries, 1989–2003



[a] Percentage change.
Business sector data do not include agriculture. Changes in productivity in Israel were taken to be the average change in productivity in the periods 1989 to 2003 and 1989 to 2005.

SOURCE: Based on Central Bureau of Statistics data.

c. Commerce and services

In 2005, there was an expansion of activity in the commerce and service sectors, primarily as a result of the growth in local demand.

In 2005, the activity in the commerce and service industries grew significantly which was a continuation of the trend that began eighteen months earlier. The activity in these industries, which accounts for half of business output, is mostly non-tradable and therefore closely linked to changes in local demand. Thus, the rapid expansion of activity in the commerce industries and some of the service industries, such as hotels and catering services, health, personal services and others, was the result of the ongoing increase in private income and consumption. The increase in the activity of

Table 2.12
Commerce and Services, Main Indicators, 2005

	Share in total commerce and services product (%)	(annual change, percent)		
		Product, at 1995 prices	Labor input	Real wage per employee
Commerce and services	100	7.1	4.3	4.1
Commerce	24	5.1	3.0	1.2
Services	76	7.8	4.7	5.1
of which Hotels and catering	5	11.0	8.0	0.3
Banking, insurance and finance	17	5.9	4.9	2.4
Education, health and welfare	13	4.4	3.7	0.4
Personal and other[a]	6	8.0	8.0	0.5
Business services	35	9.4	3.7	4.9
Of which: Computer and R&D services	13	7.6	7.6	5.0
Real estate, and hire of machinery and equipment	7	12.7	-1.6	1.4
Legal, accounting, architectural and engineering	15	10.3	0.2	9.4

[a] Including community, social and personal services, and services to households by individuals.
SOURCE: Central Bureau of Statistics.

The recovery in activity led to a healthy increase in employment in most of the sectors while wages increased only in sectors intensive in highly educated workers.

business services including, among others, computer, legal and accounting services and the increase in the activity of the financial institutions was the result of the recovery in the business sector and the boom in the capital market. An important contribution was made this year by the increase in the export of tourism services and the activity of startup companies.

The recovery in activity led to a healthy increase in employment in most of the industries although wage changes were determined by the degree of intensity in human capital. Thus, while wages increased in business services and computer and R&D services, which are intensive in educated workers, in industries that employ largely unskilled workers (hotels and food services, cleaning services and manpower services) wages remained basically unchanged. The stability in wages and the increase in employment point to the lack of a constraint on the expansion of supply in industries that are not education-intensive. In contrast, in education-intensive industries there are signs of such a constraint in the form of wage increases and a low rate of unemployment among educated workers.

The moderate slowdown in the output of computer and R&D services concealed the much more serious slowdown in exports and the activity of the venture capital funds.

(i). Selected services

Computer and R&D services and startup companies: The output of computer and R&D services and startup companies grew this year by 8 percent which represents a slowdown relative to last year's rate of 10 percent. The moderate slowdown in output conceals a more serious slowdown in exports (to which most of the industry's activity is directed) from an increase of 24 percent last year to only 5 percent this

year (in nominal dollars terms). This slowdown was moderated by a sharp increase of 20 percent in the activity of startup companies (following no growth the previous year). The activity of startup companies, which accounts for 20 percent of the output of the computer and R&D services industry, is financed by venture capital funds and its growth this year was primarily the result of an impressive increase of 44 percent in venture capital raised last year. However, this growth has abated and the total capital raised by the venture capital funds fell this year by 10 percent. The significant decline in the export of computer and R&D services and the capital raised by venture capital funds is not reflected in the employment and wages in the industry which grew significantly for the second consecutive year. It is possible that these costs are an indicator of optimistic expectations since the production processes in this industry are long run by nature although it is more likely that this is a delayed reaction to the impressive increase in the demand for the industry's output last year.

Banking, insurance and financial institutions:[29] The growth in the output of this industry reflects a healthy increase of 9 percent in the output of the banks and an even larger increase for other financial institutions. In contrast, the output of insurance agents declined somewhat. The increase in the output of the banks was the result of the expansion in the financial intermediation of the banking system as reflected in the 8 percent growth in bank credit and the increase in income from commissions that resulted from, among other things, a sharp increase (of 50 percent) in the volume of trade on the stock exchange and also in the value of shares. The rapid growth in the number of requests for information through the Internet continued this year at a rate of 55 percent. The widespread adoption of new technology has increased the efficiency of banking services which has been accompanied by an ongoing increase in productivity and the utility of consumers. The output of the non-banking financial institutions grew even faster than that of the banks which is a reflection of the sharp increase in non-banking financial intermediation. Thus, its share of total credit grew this year from 26 to 29 percent.

The increase in the output of the banks resulted from the expansion of financial intermediation and the increase in revenues from commissions which was due to the sharp increase in turnover on the stock exchange and in the value of shares.

Tourism and hotel services: The improvement in the security situation led to an increase in incoming tourism and a recovery in the hotel industry. The number of incoming tourists and the number of nights spent by tourists in hotels increased by 27 and 42 percent, respectively. The occupancy rate in hotels grew to 57 percent and came close to the rate of 61 percent which was reached in the 90s. The number of nights spent in a hotel by foreign and Israeli tourists combined came close to the record level reached in 2000 (even though the number of nights stayed by Israelis did not grow this year). Hotels have not reached their supply constraints but in certain areas they are not far away. Thus, the average occupancy among hotels in Eilat and at the Dead Sea, which are largely based on internal tourism, reached 65 percent and

The improvement in the security situation led to an increase in incoming tourism and a recovery in the hotel industry. In some regions, the industry was approaching its supply constraints.

[29] The review of this industry is only meant to complete the picture of the industries of the economy. For a more detailed survey of the industry, see the Annual Survey of the Supervisor of the Banks 2005 which was published last summer.

over, as it did among hotels in Tel Aviv which are primarily based on foreign tourists.[30] In Jerusalem, which is the main center for foreign tourists, and in the Lake Kineret and Jezreel regions, which attract tourists on pilgrimage, the level of occupancy was still low at 50 percent; however, the number of visitors and the number of (open) hotel rooms increased significantly this year as a result of the doubling of the number of tourists on pilgrimage (who currently account for 16 percent of the total number of tourists). Despite the recovery in the total nights stayed in hotels, the utilization of capital in the hotel industry is still significantly lower than it was in the period 1997–2000, prior to the crisis. Thus, the revenue per room was lower by 15 percent, one third of which was a result of the decline in occupancy and two thirds of which was a result of the fall in prices.[31] The number of workers, though it increased this year by 6.5 percent, is also much lower than during the peak years. An analysis of data for the hotel industry indicates that the main reason for this is the major increase in the proportion of subcontracted workers in the hotel industry.

The income of the economy from tourism has been characterized by high volatility in recent years.

The revenues of the economy from incoming tourism reached $2.5 billion in 1998, grew to $3.5 billion on the eve of the Millennium and then plummeted to only $1 billion during the first two years of the Intifada. Since then they have gradually increased and in 2005 reached $1.8 billion. The fluctuations in the revenues from tourism (and in the output of the industry) were larger than the fluctuations in the number of tourists since during the recession years the dollar expenditure per tourist dropped by one third. This was the result of the fall in prices in the industry and the change in the composition of tourists, i.e. a drop in tourists on pilgrimage and those coming to tour the country, which require a relatively high level of expenditure, and an increase in the number of tourists visiting relatives. The increase in the share of tourists coming to visit relatives and the ongoing increase in the nights stayed in hotels by Israelis played an important part in smoothing out the fluctuations within the industry. However, this smoothing out was limited since the tourist sites preferred by Israeli tourists are not identical to those preferred by foreign tourists and in addition they differ in the timing and quality of their vacations.

As a center for religious tourism, both Christian and Jewish, Israel possesses a significant tourism potential. However, the output resulting from incoming tourism is not particularly large and usually has not exceeded two percent of GDP (apart from during the peak period). In view of the higher rates of unemployment among unskilled workers and in the periphery, the prosperity of the tourist industry is particularly important. The exploitation of tourism potential requires increased competition among airlines (see Box 2.5) and direct government investment in areas such as marketing abroad which may not be worthwhile for a single private entrepreneur but are worthwhile for the economy as a whole. However, one cannot ignore the effect of the industry in intensifying, rather than moderating, the business cycles

[30] This compares to an average hotel occupancy in Israel of 62.7 percent during the period 1991–2000.

[31] The revenue per night spent in a hotel (of a given type) discounted by the CPI.

in the economy. This is a result of the particular sensitivity of the industry to the security situation which is an important component in determining the movements of the business cycle. During a period of calm and stability, demand in the economy increases, unemployment is reduced and the relevant constraints switch to the supply side. The additional growth in tourism increases the income of the economy (primarily through the increase in the prices paid by the tourist) but it crowds out other economic activity. On the other hand, during a period of tension, when the economy suffers from a shortage in demand, tourism is at low levels. The lack of symmetry does not necessarily manifest itself in the decision to invest in the tourist industry since in many cases the decision is made by foreign investors whose portfolios are large and diversified and therefore their sensitivity to fluctuations in local activity is relatively low. In contrast, from the point of view of the economy, the value of a given amount of tax revenue (and of private income from labor) during a boom is lower than during a recession and it is certainly lower than during a recession which is accompanied by a difficult security situation and an increase in the risk premium.

Despite its contribution to reducing structural unemployment, the tourism sector is responsible for intensifying the business cycle of the economy due to its particular sensitivity to the security situation.

Box 2.4
Government assistance to small businesses

The activity of small and medium-sized businesses accounts for some 55 percent of employment and about one half of business output. Thus, the growth and efficiency of these businesses is very important to the future of the economy. But does that justify providing them with special government assistance? Those who are in favor of this assistance point out that small businesses are labor-intensive and claim that the assistance improves competition and reduces unemployment and economic inequality. Those opposed to the assistance point out that the productivity of small businesses is low as is their ability to invest in R&D (whose contribution to economic growth is well-known). In addition, their workers receive low wages and suffer from a lack of job security. Research that examined the unique contribution of small businesses in various countries (using cross-section data) did not find a causal relationship between the share of small businesses in GDP on the one hand and the rate of growth and extent of poverty on the other in those countries.[1]

A significant portion of the difficulties encountered by small businesses results from a lack of economies of scale and specialization. (For example, the small business owner is forced to deal with a variety of issues, including marketing, financing, motivating his workers, legal contracts, etc.). These difficulties do

[1] Beck, T. A. Demrigue and R. Levine, "SMW's Growth and Poverty: Cross-Country Evidence", Journal of Economic Growth 10 (2005), 199–299.

not, however, justify government involvement which is only warranted in cases of market failure or the existence of externalities. Although certain large businesses with market power have a negative effect on competition, frictional unemployment and economic inequality (since their market power provides them with a higher return on capital), the majority of large businesses operate in competitive markets in Israel and abroad. In any case, the way to deal with firms that enjoy market power is through regulatory agencies and the strengthening of competition rather than through sweeping subsidization of small businesses.

One possible justification for government involvement for the benefit of small businesses is in the area of financing since the high level of concentration in the banking industry and the inability of small businesses to raise capital from alternative sources give the banks market power. According to the reports of the largest five banks for 2004, the cost of credit to small businesses (the banks' rate of profit on the financing of these businesses before the provision for doubtful debt) was 2.8 percentage points higher than that of the rest of the business sector. This differential is not the result of a higher level of risk or operating costs since the profits before tax per shekel of credit to large businesses (after operating expenses and income and the provision for doubtful debts) are still 140 percent higher than the profits per shekel of credit to the rest of the business sector. It is possible that this is an indication that the banks are exploiting their power over businesses that have no access to foreign banks or to the capital market. However, it should be pointed out that we have no similar figures for previous years and it is possible that a long run analysis would have produced different results. (It is possible that the provision for doubtful debts for large businesses was unusually large in 2004.) The financing difficulties of small businesses are also reflected in the Bank of Israel's Survey of Companies according to which a higher proportion of small businesses report financing difficulties than larger businesses.

The preferred way of assisting small businesses is to continue implementing the policy of increasing competition in the credit market rather than through government-guaranteed credit. The opening of the economy to capital flows in the 90s led to a decline in the market power of the banks over large borrowers.[2] It can be assumed that the increasing competition for large borrowers by foreign banks (and by non-bank lenders whose activity has grown significantly in recent years), as well as the restrictions on credit to a single borrower, have freed up sources of credit for the banks and have increased the competition among them in loans to small businesses. It is important to remember that the banks

[2] H. Bar and S. Ribon (2005), "Market Power of Banks against Large Firms – what has Changed with the Opening of the Israeli Economy", Israel Economic Review, vol. 3, no. 1, pp. 23-51.

have major advantages over the government fund that grants loans to small businesses. Thus, the banks have a large and diversified portfolio of credit, they benefit from knowledge and experience in monitoring small businesses and they have a widespread geographic distribution. A possible way of reducing the financing difficulties of small businesses (in addition to increasing competition among the banks) is through the Business Development Centers. These centers, which are financed by the State, currently assist small businesses with advice, mentoring, courses and the writing of business plans in order to obtain loans. It may be worthwhile using them to rank the degree of a business's financial stability. If a business is ranked as stable, this would be sufficient for the bank which would be able to save the costs of an evaluation (which are eventually passed on to the small business).

d. Transportation and communications

The output of the transportation sector grew at a healthy rate of 6 percent thanks to the growth in economic activity and the calm in the security situation.

The output of the transportation industry, which accounts for 8 percent of business output, grew by a healthy rate of 6 percent. The growth in the transportation industry was led by a rapid increase in the activity of the airlines and the airports and reflects an increase in incoming tourism and trips by Israelis abroad. The output of the shipping industry and the ports grew by a moderate rate despite the increase in the volume of Israel's international trade and the partial opening of the Jubilee Port. The activity in overland transportation grew by 5 percent due to the increase in overall economic activity and the calm security situation. The output of the trucking industry and buses and taxis grew by a similar rate while the output of the railway (whose share in the output of overland transportation is only 4 percent) grew by close to 10 percent as a result of the substantial increase in government investment in the railway.

The wages in the overland transportation sector remained stable due to the high rate of unemployment among unskilled workers in the economy and the increased level of competition in the sector.

The growth in the demand for transportation services led to a substantial increase in the number of workers in the overland transportation industry and an increase in its output. However, there was no increase in wages in the industry as a result of the high rate of unemployment among unskilled workers in the economy, the increase in the number of new workers in the industry (who earn less than the veteran workers) and the increasing competition between the bus companies (which reduced the negotiating power of the workers). Evidence of the increasing competition is the decline in the prices of traveling on buses this year despite the substantial increase in the price of gasoline. In contrast, the recovery in profitability in the sea and air transport industries, in which the unions have more power and the workers tend to be more skilled, led to significant increases in the real wage.

The output of the communications industry grew this year by only 3 percent.

The output of the communications industry, which accounts for 5 percent of business output, grew this year by only 3 percent. The elasticity of the private consumption of communication services relative to income is less than unitary and

Table 2.13
Transport and Communications, Main Indicators, 2005
(annual change, percent)

	Share in total commerce and services product (%)	Product, at 1995 prices	Labor input	Real wage per employee	Price relative to CPI
Transport and communications	100	4.5	4.9	1.0	0.5
Communications	39	2.7	7.8	1.0	-1.2
Transport and storage	61	5.9	3.6	1.0	1.7
Of which: Buses, taxis and trains	16	5.1	4.1	-1.3	1.2
Trucks	20	4.7			0.6
Air and sea transport, airports and seaports	20	7.3	3.1	6.5	0.8

SOURCE: Central Bureau of Statistics.

therefore the increase in private income had a relatively modest effect on the industry. The increase in the output of the industry in recent years was a result of the increasing use of new communication services, such as the Internet, mobile phones and multi-channel television. Although this year the increase in the rate of penetration of rapid Internet continued (from 43 to 55 percent), in other areas, there was only moderate increases and in some cases even a decline: the use of fixed-line phones has fallen; there is increasing use of the Internet for international calls (which is not included in output) in place of the services of communication companies; the penetration of mobile phones has exhausted it potential; and the use of "third generation" mobile phones is still limited. The prices of communication services continued to fall this year. This was primarily due to technological improvements which brought down the prices of previous technologies (an increase in bandwidth) and increased competition (Internet telephones) and the intervention of the Ministry of Communication to reduce the connections fees between the different phone companies.

The government has worked intensively in recent years to increase the efficiency of the transportation and communication sectors and to increase their externalities for the benefit of the economy as a whole.

The transportation and communications industries are infrastructure industries which have externality effects on the general economy and their importance greatly exceeds their share of GDP. For example, an improvement in the quality of public transportation and road infrastructure[32] will widen the job possibilities for workers and improve the matching of workers to firms and in this way will increase output and reduce unemployment. A decrease in the price of sea and air transport will increase the export of tourism and goods and even the welfare of consumers through the fall in the prices of imported goods and vacations abroad. Exploiting the externalities of the transportation and communications industries is dependent to a large extent on the planning and supervision of the government which in recent years has been highly active in increasing the efficiency of the industry and increasing its contribution to the

[32] The road infrastructure and private transportation (not including travel on toll roads) are not included in this industry.

economy. Thus, there are now new bus companies operating in addition to the veteran companies Egged and Dan; each one of the ports is now operating as a separate company and the Ports Authority has become a regulatory body; and in the communications industry, competition has been introduced in landline telephone service and the mass distribution of mail (the Postal Authority has become a government corporation). The measures that the government has decided upon but not yet implemented include: increasing competition in the airline industry (Box 2.5) and the mobile phone industry (through being able to maintain the same number when changing services[33]) and the establishment of a national communications authority to replace the Ministry of Communication which will be a professional body responsible for the planning and monitoring of the communications industry.

Rapid technological developments are changing the face of the communications industry but have not eliminated the need for government regulation.

The rapid technological development in communications in general, and the Internet in particular, is changing the face of the communications industry. The use of the Internet for the transfer of data, voice and video is continually growing and has enabled a substantial increase in the level of competition in the industry and in theory has made public regulation of the industry superfluous. Thus, for example, the use of Internet telephones is continually growing and will lead to a decline in the price of international calls; the granting of licenses to telephony companies that will exploit the existing Internet infrastructure will greatly increase competition in the domestic telephone market; and in the future, the Internet will even enable more competitive delivery of television broadcasts. On the other hand, there is an opposing process of conglomeration in various areas of communications which is liable to limit competition to a small number of companies who own the Internet structure to the customer's home (Bezek and Hot). They have brought together companies that are involved in multi-channel television and in domestic, international and mobile telephone services and are creating a network with the characteristics of a natural monopoly, i.e. high fixed costs, low variable costs and significant barriers to entry. Therefore, it is important that a regulatory body maintain competition and even require, if necessary, owners of the infrastructure to allow its use by competing companies.

The introduction of competition in the ports was motivated by the desire to increase their efficiency and the utilization of their capital.

The reform of the ports: The need to introduce competition in the ports stems from the desire to improve the efficiency of their operations, to increase the utilization of capital, to shorten the waiting time at the ports and to a lesser extent to reduce labor costs. The average waiting time for a ship in the port of Ashdod reached 12 hours in 2002 (not including Saturdays, holidays and strikes) and the cost of a day's wait was in the range of $1000–$2500 (according to the size of the ship). In order to reduce crowding, a levy of 7 percent of the price of shipping was charged to ships wishing to anchor in the port of Ashdod. (The tax was levied by the Union of Ship Owners to deal with the overcrowding in the port and for the most part was passed on to the Israeli consumer.) Despite the high costs of overcrowding, which were primarily the result of

[33] This is in place of strengthening competition by increasing the number of competitors which involves increasing the number of antennas and their negative effects. Alternatively, it is possible to obligate the mobile phone companies to allow additional companies to use the existing infrastructure in exchange for payment.

insufficient infrastructure, the ports were not working at full utilization. Proof is that only in 2003 a third shift was instituted and additional steps were taken that enabled the reduction of waiting time in the port of Ashdod by 20 percent.

The reforms created limited competition between the two main ports but did not lead to full competition between the docks.

As a result of the reform, three government companies were established in order to operate the ports and an additional company was established for the management, maintenance and development of the assets of the ports. In addition, the Shipping and Ports Authority of the Ministry of Transportation was given regulatory responsibility. The reform has created competition between the Ashdod and Haifa ports (which account for 95 percent of Israel's cargo) but has not achieved full competition between docks and even the Jubilee Port, which was opened this year, does not operate as an independent port but as part of the Ashdod Port Company. The competition between the ports is limited both because there are only two competitors (duopoly) and because each port has different specializations. Thus, the Ashdod port specializes in general cargo since it has a large area behind the port which allows the storage of cargo that requires a lot of space (such as metal, cars, etc.) and in phosphates due to its geographical proximity. The port of Haifa deals with especially large ships since it is a deep natural port and because the port of Ashdod does not operate on the Sabbath which lengthens the waiting time there and thus increases costs. The difference in specialization, the lack of unutilized capacity, the geographic distance, the high cost of overland transport and the long term contracts with the shipping companies are limiting the competition between the ports which is currently restricted to containers. Nonetheless, there is the possibility that in the future competition will be expanded to additional areas, such as seeds, which is dependent on the investment decisions of the Authority for the Development of the Assets of the Ports.

The Authority for the Development of Port Assets must work to increase competition among the ports even though this is liable to reduce profitability.

The Authority for the Development of the Assets of the Ports has been instructed to work towards increased competition which means that it does not need to take into consideration the effects of new investment on the capital already invested. Any new investment will increase the total capacity of the ports and will therefore increase competition (especially if the investment enables the port to compete in a new market segment) and reduce prices. New investment is likely to reduce the return on existing capital in the ports (and the revenues of the Authority for the Development of the Assets of the Ports). However, one cannot conclude that this investment is not worthwhile for the economy as a whole since a drop in prices will benefit consumers and exporters and will allow an increase in economic activity.

An analysis of the effect of the reform on the performance of the ports in its first year of implementation (i.e. 2005) indicates that the waiting time of ships has dropped during a period in which the flow of cargo and containers has grown (due to the increase in economic activity). However, the improvement in the port of Ashdod (where the crowding levy was cancelled at the beginning of 2006) was due primarily to the partial opening of the Jubilee Port and it is therefore difficult to isolate the effect of the reform. In the port of Haifa, there has been an improvement in the utilization of existing capital. The movement of containers and cargo has increased this year by 10 and 4 percent, respectively, while at the same time waiting time has decreased;

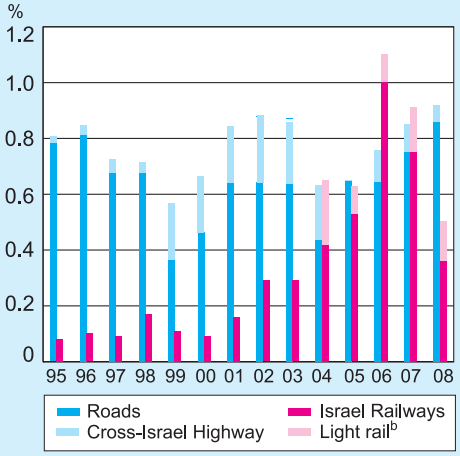
however, it is still too early to estimate the contribution of the reform to the efficiency of the ports.

Public transportation: There is growing recognition by the government that the preferred way of solving the overcrowding on the roads is to give priority to public transportation over the construction of new roads. The need to provide commuters with access to their place of work is an essential component of a modern economy. However, the reliance on investment in roads alone has often led to traffic jams at the entrances to the major cities where employment is concentrated. An evaluation of government activity during the last two years indicates that there has indeed been a change in thinking. Thus, the budgets for the railway, light rail and public transportation lanes have been significantly increased. The railway, which last year became a government corporation, has received an unprecedented multi-year budget of 20 billion shekels (which is 50 percent higher than the budget for road development); the government is progressing with mass transit systems in Jerusalem and metropolitan Tel Aviv; a tender has been awarded for the light rail system in Jerusalem (the government has committed itself to providing a grant in the amount of 75 percent of the building costs); and the conditions of the light rail system tender in Tel Aviv have been improved (the government has committed itself to early payment of building grants and to enlarge the safety net for the winner of the tender). This is all evidence of the government's willingness to bear the cost of the substantial investment and the major risks involved in these projects. The government has also made progress in the building of a new public transportation lane on Highway 1 from Ben Gurion Airport to Kibbutz Galuyot in Tel Aviv which will make traveling by public transportation faster during peak hours, even relative to private vehicles (for some users).

There is increasing recognition within the government that the preferred solution to the problem of overcrowding on the roads is to give priority to public transportation over the construction of new roads.

The reorganization of bus services, as a result of which Egged and Dan lost 9 percent of the market to new companies, is in theory part of the solution to the overcrowding on the roads. The reform has brought a significant decrease in the price of travel on the lines that were transferred to the new companies which has encouraged the use of public transportation and led to increased efficiency in the industry. (Nominal wages in the industry fell by 13 percent relative to 2001.) However, the reform has hardly influenced the prices of travel on the remaining lines which remain

Figure 2.12
Investment in Transport, in Roads, Rail and Light Rail, as Share of GDP,[a] 1995–2008



[a] Assuming an annual growth rate of 4 percent from 2006.
[b] The light rail for Jerusalem and Tel Aviv.

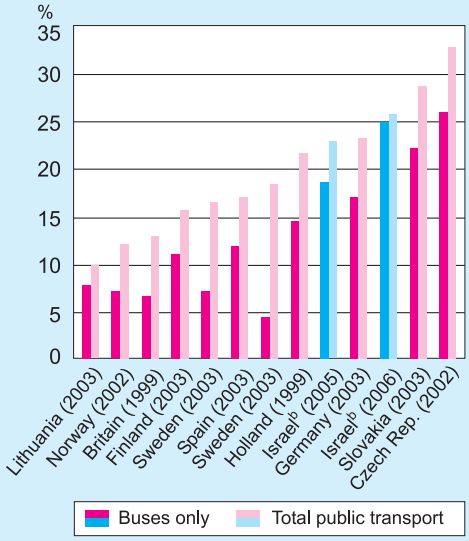
SOURCE: Up to 2005, Central Bureau of Statistics. For 2006-2008, estimates, based on data from Ministry of Finance, Israel National Roads Company and Cross Israel company data.

in the hands of the veteran companies and which account for most of the activity in the industry. The structural change was carried out through tenders which in the beginning were awarded according to the price and quality of travel promised by the supplier. Later the tenders were altered in order to focus on the revenues that the operator would pay to the State. The concessionaires in Elad, Ashkelon and in the southern Negev and Beer Sheva are committed to paying the government significant annual fees (3.1, 10.4 and 21 million shekels, respectively) and the payment of these fees came at the expense of the welfare of the passengers.[34] The payment of concession fees is essentially a tax on passengers who are neither crowding the roads nor polluting the air and is the result of the government's deficient order of priorities. Although the transfer of the monopolistic rent collected by Egged and Dan to the public purse through the payment of fees is desirable, it is more important to ensure that the lower price of public transportation and the high fees will not prevent the transformation of public transportation into a real alternative to driving by car. Therefore, greater emphasis should be placed on shortening travel time by increasing the frequency of buses and reducing the length of their routes (by using a larger number of smaller buses which will travel shorter routes) and when necessary the government should subsidize a concessionaire. Shiftan and Sharaby found that the biggest improvement that resulted from the reform of public transportation was in the Beer Sheva to Tel Aviv line for which the concession was granted to two competing companies. Thus, on routes with sufficient volume, real competition between a number of operators should be preferred over granting a concession to a regulated monopoly.

Charging a concession fee essentially constitutes a tax on passengers who are neither crowding the roads nor polluting the air and is evidence of the government's deficient order of priorities.

On routes with a large volume of traffic, real competition between a number of operators is preferable to the granting of a concession to a regulated monopoly.

Figure 2.13
Use of Public Transport as Share of Total Transport[a]



[a] Use of public and private transport (by road or rail) is measured by passenger kilometers, that is total distance for each passenger. [b]1996 data are from travel survey of 1996/1997 and 2005 data are estimates: 1996 data adjusted by rates of change in real revenues (for buses) and in travel (for private transport) between 1996 and 2005.
SOURCE: Travel survey 1996/97 and Central Bureau of Statistics.

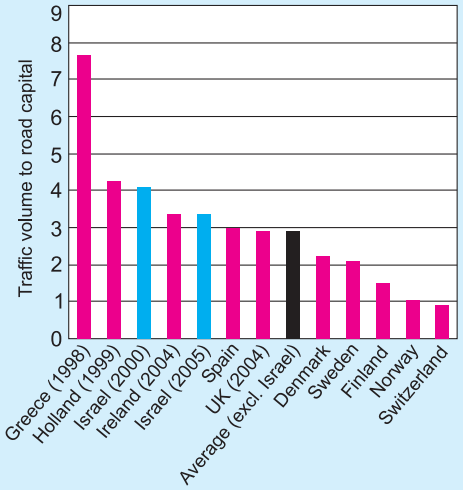
Road congestion in Israel has declined in recent years as a result of heavy investment in roads.

Road congestion—an international comparison: Road congestion in Israel has declined in the last few years, as a result of heavy investment in roads. It is estimated that the congestion in Israel is similar to that in the UK and Ireland (Figure 2.14). Those two are appropriate choices for comparison due to their similar topographic

[34] Shiftan, Y. and N. Sharaby (2005), "Competition in bus transport in Israel", forthcoming in *Transportation Research Record*.

structure to Israel's, since road capital is greatly affected by topography. In UK annual expenditure on roads in 1997 to 2003, including maintenance, averaged 0.6 percent of GDP, and in Ireland in the years 1997 to 2004 it averaged 0.7 percent of GDP; in Israel in 1997–2004 it averaged almost 1 percent and in 2005 was close to 0.9 percent.

Figure 2.14
Road Congestion, 2003



SOURCE: IRF (International Road Statistics) 2005. For Israel, UK, Ireland and Denmark, data from their Bureaus of Statistics were also used. Road capital is for the end of the year for which traffic data were taken.

The road congestion index is calculated by dividing kilometers driven by net road capital.

The figure shows the index of road congestion, which is calculated by dividing kilometers driven by net road capital. Kilometers driven are calculated by weighting the kilometers driven by the different types of vehicle (cars, buses and trucks) by coefficients representing their relative disturbance to traffic flow.[35] Net road capital is the cumulative investment in roads reduced by 2 percent a year, as is the accepted practice in the Central Bureau of Statistics. Net capital is calculated using certain weightings for the prices of the investment in different countries.[36] This index is preferable to other indices such as the number of kilometers driven divided by total road mileage, which was used for measuring congestion in the past, because in mileage a narrow road is treated like a wide road, and junctions are not counted. The index shown in the diagram is not entirely problem-free, as expenditure on the roads depends also on topography. In Switzerland, for example, there are many roads with tunnels, which have a high cost, while Israel has less need for tunnels. UK and Ireland are topographically similar to Israel, and their average congestion is also similar to Israel's.

The calculation relates only to average congestion; clearly there are more congested roads and less congested ones. It should also be borne in mind that congestion is higher in the conurbations that in outlying areas, so that in the conurbations it may be worth investing in mass transit systems.

[35] A bus disturbs traffic twice as much as does a car, and a truck two-and-a-half times as much as a car.

[36] Net capital was calculated once using standardization for the different levels of prices of the investment in different countries, and once without it. The first method gave the result that congestion in Israel is about 11 percent lower than the average of UK and Ireland, whereas according to the second method, Israel is 11 percent more congested than UK and Ireland, on average. The difference derives from Israel's relative low level of prices; standardization for prices of the investment increases road capital, and thus lowers the congestion index. The figure shows the average of the two methods of calculation.

Box 2.5
Open skies

The Israeli aviation sector is not open to free competition. A bilateral agreement between the regulator in Israel and his overseas counterpart determines the degree of competition on each route. Airlines provide three types of services: scheduled flights, connection flights[1], and charter flights. In Israel, regulation includes restrictions on the number of scheduled flights, the number of airlines with designated carrier status[2], the number of weekly flights (a restriction on frequency), the number of seats on flights (a restriction on capacity), and on flying rights[3]. Through ticket prices, the degree of competition affects the degree of openness of the economy, which has a positive effect on economic performance, and in particular on the welfare of Israeli consumers and the number of tourists visiting Israel[4].

Changes in global regulation

Regulation similar to that prevailing in Israel was once common around the world. In recent decades, however, we have seen gradual deregulation of the industry – first in the United States, which instituted liberal bilateral agreements free of restrictions on the capacity and frequency of flights, and the number of designated carriers on each route. The European Union (EU) instituted an unconditional "open skies" policy in its jurisdiction, meaning that all regulation was removed. The EU is now promoting implementation of this policy in other countries, particularly in the Mediterranean basin, and is also negotiating with Israel. The open skies reform in Europe has had many ramifications for the aviation industry, among them the liquidation of weaker national carriers, which were merged into large airlines, and the creation of global aviation associations, under whose sponsorship airlines from all over the world are creating an all-inclusive international network. Deregulation has made possible

[1] Carrying passengers from country A to a third country, C, via country B, or from country C to country A via country B.

[2] Countries that grant their airlines designated carrier status on a given route give them the right to operate scheduled flights on that route.

[3] Flying rights are rights that country A grants another country, B. These rights determine the takeoff, landing, and flying rights of airlines from country B on the territory of country A. In contrast to the agreement binding the European Union, Israel's bilateral agreements do not allow a third party to carry passengers from Israel (for example, they do not allow an Italian carrier to transport passengers from Israel to France without a stopover in Italy).

[4] See Bank of Israel, "Recent Economic Developments January-June 2005," pp. 15-17. The average added value of a tourist is $650, and 100,000 more tourists increase employment by approximately 3,000 jobs, most of which are blue-collar.

low cost airlines, which provide very frequent short flights (up to three and a half hours) with minimal passenger service, at low cost. These airlines are winning an increasing share of the European aviation market. In Israel, on the other hand, for years no significant regulatory changes have been introduced. Recently, however, the industry's competitiveness improved in the wake of the decision to add a second designated Israeli carrier on the New York route. In addition, a more liberal policy is being formulated by the regulator, i.e., the Civil Aviation Authority, subject to frequency and capacity limitations.

We will discuss whether it is worthwhile changing the existing situation in Israel, and the opportunities and risks involved in the various alternatives.

Structure of the industry

Israel's aviation sector currently has 39 airlines operating scheduled flights on 52 routes, plus 55 charter companies. Typically, two airlines usually operate scheduled flights on a route—El Al and an airline in the target country, both of which enjoy designated carrier status in the framework of a bilateral agreement governing this route—plus charter companies. In 2005, El Al had a 52 percent market share of passengers using airlines operating scheduled flights. Together with its subsidiary, Sun Dor International Airline, El Al carries 44 percent of all passengers at Ben Gurion Airport. This figure is higher than the usual market share of national carriers in Europe. Charter flights account for 21 percent of all aviation activity. Israeli charter companies (Israir, Arkia, and Sun Dor) have a 10 percent market share of all passengers, and foreign airlines and charter companies have the rest of the market[5].

Israeli companies suffer from geopolitical inferiority, because Ben Gurion Airport is incapable of serving as a hub for connection flights, while European airlines can use their home airport for this purpose. Large European airlines have another advantage: their far-flung network of destinations and connections with other airlines, which enable them to increase the number of passengers on connection flights. El Al has no far-flung network of destinations, and is also burdened with much higher security costs than overseas airlines. On the other hand, the Israeli airlines benefit from lower costs for less tradable services, since costs in Israel are lower.

El Al's figures show considerable streamlining by the airline, starting in 2001. When El Al was floated on the stock exchange, the government apparently undertook not to change its aviation agreements until the number of passengers at Ben Gurion Airport reached 10.7 million (unless certain circumstances prevailed). Some 8.6 million passengers passed through Ben Gurion Airport

[5] Danny Morag, "Competition in Air Transportation of Passengers to and from Israel, Summer 2005," Israel Civil Aviation Authority (Hebrew).

in 2005. The government recently granted Israir a designated carrier license on the route to New York.

An analysis of the degree of competition in the industry

Is El Al's dominance a result of its monopolistic power—caused by regulatory restrictions—that harms not only Israeli consumers, but also the Israeli economy, by limiting the expansion of trade, and by damaging the potential of tourism? Or is this dominance the result of successful activity that has enabled El Al to push aside its foreign competitors?

Table 1
Rate of Seat Occupancy

Airline	General Rate of Occupancy in 2004 (%)	Rate of Occupancy from Israel in 2004 (%)
El Al	77	77
British Airways	75.7	70.1
Alitalia	67	80
Lufthansa	74	80.1
Swiss	74.9	85

Sources: El Al – 2004 financial statements; others – representative offices in Israel

The best way of measuring the degree of competition is by comparing prices per passenger kilometer from Israel to the price between other destinations with similar travel times. There are no reliable price data in Israel.[6] We will therefore present alternative parameters for evaluating competition in the sector.

(1) The rate of occupancy[7] is used as a measure of competition on a route: the rate of occupancy is lower on routes with more competition, since excess capacity is a basic condition of competition (Table 1). Comparison with the general occupancy rate shows that El Al's occupancy rate is higher than the prevailing rate in Europe, indicating less competition in Israel. The higher occupancy rate in Israel, compared with the general global rate, also shows a lesser degree of competition in Israel. El Al's occupancy rate is similar to the average of foreign airlines on flights from Israel, even though some of them use their lines from Israel as feeders for other flights (see Table 3 – proportion of connection passengers). This indicates that El Al is generally handling its competition well.

(2) Another comparison is the number of operators on a route, compared with its volume. Table 2 shows that, on high-volume routes, the level of competition

[6] An examination of prices is currently impossible, due to a lack of data. Inquiries made to El Al were not answered. A global reporting mechanism for the average price on a route exists, and many studies relying on this mechanism have contributed to decision-making aimed at opening skies around the world to competition. No such mechanism exists in Israel.

[7] The rate of occupancy (load factor) is the number of passengers on a route, divided by its capacity (the number seats offered for sale).

Table 2

The Number of Active Carriers and Volume of Scheduled Passenger Traffic on International Routes

Route	Number of Active Carriers on the Route	Number of Passengers on the Route (in millions)
Ben Gurion-New York	2	1
New York-Paris	5	1.5
Toronto-Chicago	4	0.8
Paris-Chicago	4	0.5

Source: International Civil Aviation Organization (ICAO); OAG (a company that collects data about airline routes). By permission of Danny Morag, Israel Civil Aviation Authority (ICAA), Ministry of Transport.

is greater elsewhere than in Israel. There is no doubt that improving competition requires an additional Israeli carrier on much traveled routes, particularly on the route to New York, where El Al's market share is very high (see Table 3). The decision to add an Israeli designated carrier on the route to New York will improve the level of competition on the route.

(3) Connection flights by European airlines, in which the passengers continue from the airlines' home airports to other destinations, compete with El Al flights to those destinations. The largest proportion of connection flight passengers is on flights to Germany, Switzerland, Austria, and the Netherlands: 70 percent of passengers from Israel to these destinations are connection passengers. Connection flights play a key role in lowering ticket prices. The question arises whether unrestricted connection flights should be allowed, or whether measures should be taken to protect Israeli airlines. If El Al's share on a route greatly decreases, as on the line to Austria, there is a risk that the foreign carrier may become the sole carrier on the route, which would be of questionable benefit to the consumer[8].

Alternatives for bolstering competition

We will list four factors that encourage competition on aviation routes, and discuss how the current situation can be improved.

(a) Increasing the frequency or capacity of foreign airlines enjoying designated carrier status

Today, a foreign airline with designated carrier status is not allowed to increase its supply of seats without permission from the ICAA. Obtaining permission to increase capacity is not always easy[9] if the increase is for the purpose of

[8] When the foreign carrier's flights are very frequent, and the Israeli carrier's are very infrequent, such as on the route to Austria, there is a risk of the foreign carrier becoming a monopoly, since its high frequency will make its service better.

[9] In 2004 and 2005, foreign airlines with designated carrier status filed four petitions at the High Court of Justice: Lufthansa of Germany, Swiss of Switzerland, Alitalia of Italy, and Austrian Airlines of Austria. These petitions were against the ICAA's refusal to allow these airlines to increase their supply of flights. All the petitions were withdrawn after the Minister of Transport decided to relax the restrictions.

Table 3

El Al's Market Share in Passenger Traffic of Airlines Operating Scheduled Flights and the Proportion of Connection Flight Passengers in 2004

Country	El Al (%)	Foreign Airlines Operating Scheduled Flights (%)	All Airlines Operating Scheduled Flights (no. of flights)	Proportion of Connection Flight Passengers on Foreign Airlines
US/Canada	66	34	1,178	
UK	58	42	549	30-40
Germany	30	70	513	65-75
France	79	21	432	30-40
Italy	41	59	372	50-60
Switzerland	42	58	349	65-75
Russia	48	52	257	
Turkey	22	78	246	40-50
Spain	46	54	205	50-60
Ukraine	46	54	183	
Netherlands	56	44	180	60-70
Thailand	100	0	156	
Romania	53	47	141	
Australia	21	79	128	65-75
Belgium	68	32	118	
Hungary	37	63	115	40-50
Cyprus	38	62	101	
Czech Republic	29	71	100	45-55
Greece	33	67	99	45-55
Poland	46	54	94	25-35
China/Hong Kong	100	0	69	
Other	31	69	461	
Total	51	49	6,044	

Source: ICAA

conducting connection flights. This measure is the most immediate that can be implemented, since it usually does not require reopening agreements. Its contribution to competition is limited, however, because it does not add any competitors.

The government acted to redress this situation in the 2006 Economic Arrangements bill, which the Knesset has not yet passed. The bill proposes that, in granting permits to foreign airlines, the Minister of Transport be obligated to encourage competition. Before making a decision, the minister

will hear the position of a professional inter-ministerial committee composed of representatives from the Ministries of Transport, Tourism, and Finance, and the Prime Minister's Office.

(b) The entry of new foreign airlines as carriers for scheduled flights (granting designated carrier status to new foreign airlines)

This will improve competition, but it involves reopening agreements. In most current bilateral agreements, each country has a single designated carrier; consequently, no new airlines are introduced on these routes.[10] New low cost airlines may be interested in entering the sector. The distance will prevent such airlines from offering flights to everywhere in Europe, but they will be able to offer flights to closer destinations, such as Cyprus and Italy, and from there to European cities via connection flights. These companies operate in Europe under agreements granting them the right to carry passengers from country A to country C, without a stopover in country B.

(c) The entry of Israeli airlines as designated carriers

Granting designated carrier status to an additional competing Israeli airline is the alternative with the most advantages for the Israeli economy. This would offer a solution for the shortage in capacity created during peak times in July-August. This seasonal shortage in capacity results from the way European designated carriers operate flights to Israel. Most European airlines use their home airport as a center, to which all flights are channeled, and from which they leave. During July-August, major European airlines prefer to divert their capacity to important routes, rather than increase their supply on the route to Israel, which feeds only marginal seats on trans-Atlantic flights. El Al normally absorbs most of this demand, but lately, excess demand has been created, and competition is waning. The decision to add another designated Israeli carrier on the New York route will increase capacity, thereby reducing excess demand in July-August, since improved competition on the route will reduce the proportion of connection passengers.

(d) Expanding charter flight services

This change can be implemented more quickly, but its ability to affect competition is limited. Charter companies are capable of responding more rapidly to fluctuations in demand than regular airlines, which schedule flights months before the season begins. At the same time, the restrictions on charter

[10] The agreement with the US is one of the only agreements with no limitation on the number of companies flying on the route. The American Delta Air Lines recently started flying this route as another designated carrier following the recovery of the aviation industry from the crisis of the last few years. Moreover, the German company HF started operating under the terms of an agreement between the Ministry of Tourism and the European tourist company TUI, and provides two scheduled flights a week to Germany, in addition to the 32 flights offered by Lufthansa and El Al.

flights make them a secondary factor in competition, compared with the three above-mentioned factors. The principal restriction is the ban on charter companies becoming partners in global distribution and ticketing systems. In recent years, the charter sector has been steadily losing market share, and is in fact gradually being replaced by airlines operating low cost scheduled flights. In 2005 the Ministry of Tourism implemented a program of support for charter flights in the form of a safety net against losses for charter companies flying to Israel.

Conclusions

The policy recently introduced constitutes the first step towards making the aviation industry more competitive. This includes the confirmation of the granting of scheduled carrier status to a second Israeli carrier on the New York route and authorizing more connection flights by the Civil Aviation Authority.

Competition in the industry should be increased by additional liberalization measures, such as granting designated carrier status to additional foreign and Israeli airlines, followed by deregulation which will allow low cost airlines to operate. It is almost certain that the positive effect of these steps on Israel's economy will justify the costs that they may incur.