Chapter 2
Output and Demand

In 1998 the recession persisted, expressed in the slow rate of GDP growth, a fall in per capita GDP, and further rise in the unemployment rate. Alongside these developments, the current-account deficit declined and the (annual average) rise in implicit GDP prices decelerated. The slower rate of GDP growth was due mainly to the moderation of demand, together with factors preventing the expansion of supply.

Several factors account for the low level of demand in 1998. (a) The sharp drop in the expansion of global trade, due to the financial crisis which adversely affected world economic growth, was partly offset by the ongoing improvement in Israel's terms of trade. (b) Fiscal and monetary policy remained tight, as they had been in 1997, under the long-term policy of maintaining a downward inflation path and attaining balance-of-payments and financial stability especially in view of global economic developments. (c) The continued waning of the effect of immigration on the economy was expressed this year in the decline in investment in residential construction. (d) Security-political uncertainty continued.

The moderation of supply, accompanied in 1998 by the arrest of the continuing decline in business profitability and total factor productivity, was influenced by the rise in the tax rate in the last two years, the increase in unit labor cost—which was checked this year—and the higher rate of real interest in recent years.

The more pronounced deceleration of demand than supply slowed the (annual average) rate of price increases and caused real devaluation of the exchange rate: after declining for many years, export prices rose faster than the GDP deflator in 1998. This was affected by the significant nominal depreciation towards the end of the year, the full economic effect of which has not yet been felt.

1. MAIN DEVELOPMENTS[1]

The economic recession persisted in 1998 (Figure 2.1). GDP grew by 2 percent, after 2.7 percent in 1997, together with an annual average decline of 0.2 percent of per

[1] Several changes were made in the National Accounts this year. The main ones are that export and import flows are both recorded f.o.b. (rather than f.o.b. and c.i.f. respectively), and capital transfers are excluded (Table 2.A.16) from the current-account deficit (see note 23).

The economic recession persisted in 1998. GDP growth was 2 percent, after 2.7 percent in 1997. Per capita GDP fell by an average 0.2 percent in both those years.

Causes of the slackening of demand: a. the slower expansion of world trade, offset partly by the improvement in the terms of trade; b. tight monetary and fiscal policy; c. continued waning of the effect of the influx of immigrants; d. political-security uncertainty.

The moderation of supply stemmed from the rise in the tax rate in the last two years, the increase in unit labor cost, although this was checked in 1998, and the higher real interest rate in recent years.

capita GDP in those years (Table 2.1).[2] The unemployment rate continued to rise, from 7.7 to 8.6 percent of the labor force, alongside the slower rate of increase of GDP prices (annual average) and a further fall in the current-account deficit.

The slower rate of GDP growth in 1998 is expressed mainly on the demand side, although it is evident on the supply side, too. The main demand-side factors are as follows: (a) The significantly slower rate of expansion of international trade due to the global financial crisis served to dampen export growth; this was partly offset by the ongoing improvement in Israel's terms of trade. (b) Both monetary and fiscal policy (the latter cyclically adjusted) maintained the restraint evident in 1997; this was achieved in the framework of the long-term policy aimed at attaining a downward inflation path and adhering to stability in the balance of payments, particularly in a year when the global financial crisis impeded world economic growth. The composition of public expenditure did not alter in 1998, however, nor was its share of GDP reduced, developments which would have relaxed restraint and enabled the economy to emerge from the recession in order to attain a path of sustainable growth. (c) The effect of the influx of immigrants continued to wane, as expressed primarily in the decline in residential investment. (d) The security-political uncertainty continued.

The moderation of supply, accompanied in 1998 by the cessation of the ongoing fall in profitability, was due to the rise in the tax rate in the last two years, the increase in unit labor costs (which stopped this year), the rise in the real interest rate in recent years, and the lagged effect of real appreciation, which stopped during the year and even shifted trend towards the end.

For two years domestic demand has been expanding more slowly than in the past. Investment dropped significantly, explained mainly by the recession in the construction industry, and the expansion of consumption decelerated, largely because of the moderation of current consumption. Fiscal policy adhered to the discipline displayed in 1997, when it operated in a pro-cyclical way, expressed in fiscal restraint (ex post) at a time when demand was contracting. Fiscal policy remained tight in 1998, but less so than in 1997. According to certain indicators (mainly the rise in public-sector employment), public expenditure has become more rigid, a development that may hamper continued adherence to budgetary discipline.

The rate at which exports expanded slowed in 1998 (even adjusting for the effect of diamond exports). The slowdown was concentrated mainly in manufacturing exports, although high-tech exports continued to soar; services exports accelerated, except in tourism, which continued to decline because of the security-political situation. This slowdown is explained by the significant slackening of world trade, and particularly of exports to non-traditional markets, which were affected by financial crises, although this was partly offset by the ongoing improvement in Israel's terms of trade and the diversion of exports to European markets.

[2] The main feature of the current recession is its length. The recessions of 1966–67 and 1976–77 were deeper (a steeper drop in per capita GDP accompanied by a rise in unemployment), but each lasted about two years, in contrast to the current episode, which began in the second half of 1996 and persisted throughout 1998.

Table 2.1
Indicators of Economic Activity, 1986–98

(rate of change, percent)

			1996				1997	
	1986–89	1990–95	Total	Jul–Dec[a]	1997	1998	Jan–Jun[a]	Jul–Dec[a]
GDP	2.0	2.4	2.1	0.7	0.1	–0.4	–0.9	–0.8
Per capita GDP	3.6	6.0	4.7	3.3	2.7	2.0	1.5	1.5
Business-sector product	4.6	7.2	5.6	2.4	2.6	1.8	1.4	0.6
Index of industrial output	0.9	7.3	5.4	2.8	1.7	2.8	3.3	2.2
Unemployment rate	7.1	9.3	6.7	6.9	7.7	8.6	9.0	8.3

[a] Annual rates of change, seasonally adjusted, compared with preceding six months.
SOURCE: Based on Central Bureau of Statistics data.

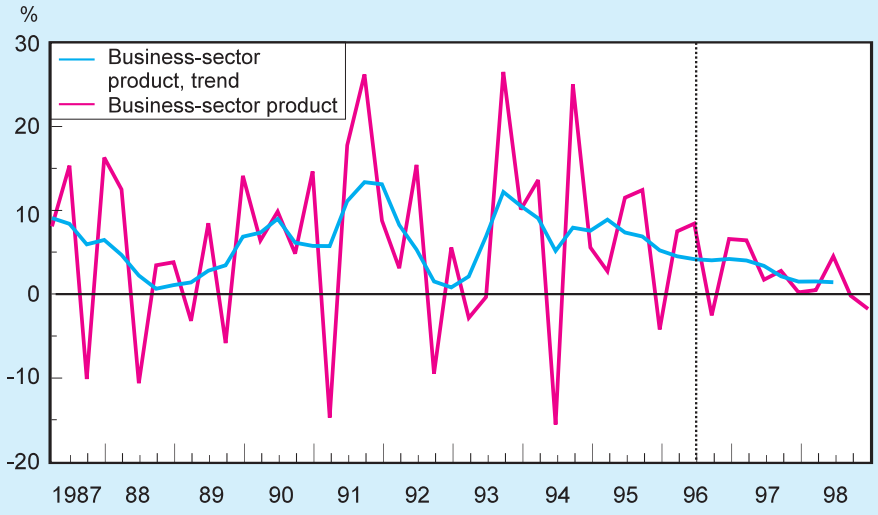
The recession, which deepened in the second half of the year, developed alongside the cessation of the longstanding decline in profitability, expressed in the rate of return on net capital. The fall in total factor productivity (TFP) was also arrested this year, while labor productivity (product per hour worked) continued to rise.

The recession in the business sector, which deepened in the second half of 1998, developed alongside the cessation of the ongoing decline in profitability.

Domestic demand has moderated more sharply than supply in the last two years, exerting pressure for price increases to slow as well as for real depreciation; price rises did in fact decelerate in 1998, and there was real depreciation in export terms (i.e., export prices rose more than business-sector product prices). Since real depreciation was affected to a considerable extent by the significant nominal depreciation near the end of the year, the conditions appear to have been created for supporting continued real depreciation, provided that policy and economic conditions in 1999 guarantee that nominal depreciation is not translated into an equivalent increase in prices.

Domestic demand sagged more severely in the last two years than supply, creating pressure for real depreciation, which occurred in 1998 in export terms.

Figure 2.1
Business-Sector Product,[a] 1987-98



[a] Quarterly data, annual percentages.
SOURCE: Based on Central Bureau of Statistics data.

The chances that the substantial current-account improvement will persist depend on a significant improvement in TFP.

In the last two years there has been a significant improvement in the current account on the balance of payments, deriving mainly from the decline in the ratio of investment to total national income. This was due primarily to the volume decline in immigration and the tight policy mix (see Box 2.1). The improvement in the current account could persist if there were a significant betterment of TFP together with stimulation of the supply side and the national saving rate.

2. AGGREGATE DEMAND AND SUPPLY

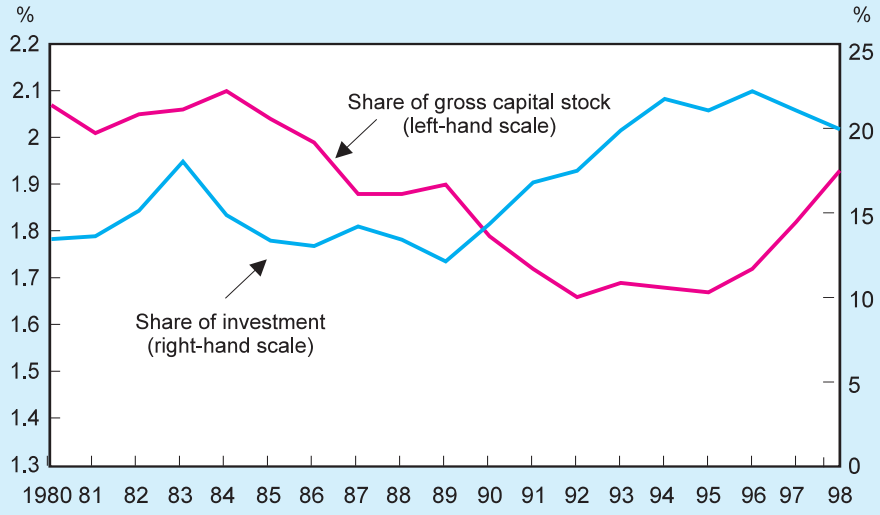
The demand side

The continued slowdown was led in 1998 by a further 7.6 percent decline in investment. There was additional deceleration of private consumption growth, from 4.1 to 3.3 percent, and of exports, from 7.6 to 6 percent.

For the last two years there has been a marked deceleration in domestic use of resources, which rose by 1 percent on average, compared with 5.1 percent in 1996 and even higher rates in previous years (Table 2.A.1). The persistent slowing was led in 1998 by the further decline in investment, principally in residential construction. Private consumption slackened further, from 4.1 to 3.3 percent, whereas public consumption (excluding defense imports) accelerated slightly, from an annual rate of 1.4 to 1.8 percent. Export growth also slowed in 1998, from 7.6 to 6 percent, after having accelerated in 1997 (alongside a decline in the rate of expansion of domestic use of resources).

In contrast with 1997, in 1998 the fall in investment encompassed only some of its components. While investment in residential construction and inventory (mainly diamonds and commerce) plummeted, that in imported machinery and equipment rose.

Figure 2.2
Share of Gross Capital Stock and Investment in Business-Sector Product, 1980-98



SOURCE: Based on Central Bureau of Statistics data.

Table 2.2
Use of Resources, 1986–98

(rate of change, percent)

	Share in total uses 1998	1986–89	1990–95	1996	1997	1998
Exports	22.7	4.5	7.7	6.8	7.6	6.0
Excluding tourism	20.9	5.1	7.4	8.3	9.4	6.9
Gross domestic investment	13.8	2.9	15.2	6.7	–6.1	–7.6
Investment in principal industries	10.1	2.1	15.7	11.2	–3.4	–1.6
Private consumption	43.2	7.1	7.4	5.0	4.1	3.3
Public consumption[a]	18.6	1.2	3.1	3.9	1.4	1.8
Domestic uses[a]	75.6	4.8	7.9	5.1	1.3	0.7
Total use of resources		4.0	7.7	5.8	2.7	2.0

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

A large part of the decline in residential construction investment is explained by the tapering off of mass immigration, developments in which have not been uniform over the years. Between 1992 and 1994 residential investment either fell or grew slowly, below the level implied by the numbers of immigrants arriving. In 1995 and 1996 it surged, and the ratio of residential capital stock to GDP attained its level prior to the influx of immigrants. Against the backdrop of this development and the stabilization of immigration, a downward adjustment of building starts was expected, as in fact occurred in the last two years. Investment in machinery and equipment has soared in recent years, alongside the rehabilitation of the ratio of machinery stocks to GDP. The rise in 1998 is due entirely to increased imports of machinery and equipment—possibly because purchases were brought forward as a result of the relatively favorable exchange rate during most of the year.[3] Other factors affecting the development of investment were the political-security uncertainty and the rise in real interest rates in recent years.

The abatement of the effect of the influx of immigrants led to the downward adjustment of building starts in the last two years and a steep drop in residential investment. Investment in imported equipment rose, however.

Fiscal policy remained tight in 1998, continuing the trend evident in 1997, but its restrictive effect on economic activity was not as great. Public domestic consumption rose by 1.8 percent, compared with 1.4 percent in 1997; public-services employment increased, moderating the implications of the recession for unemployment;[4] on the other hand, the implicit price of public consumption (which is affected to a great extent by wage developments) rose by 7 percent (compared with an increase of 7.5 percent in business-sector product prices), after rising by 7.8 percent in 1997 (and by an annual average of some 20 percent in 1994 and 1995). The accepted indicator of the extent of fiscal expansion is the 'fiscal impulse,' reflecting the change in the cyclically adjusted

The fiscal impulse, reflecting the change in the cyclically-adjusted public-sector domestic deficit, fell in 1998, but indicators such as the rise in public-sector employment point to a less favorable environment for adhering to budgetary discipline.

[3] As Table 2.A.4 shows, the price of investment in imported equipment was higher in 1998 than in previous years, and also than that of domestic production. Nevertheless, the development of prices during the year shows clearly that most of the rise in prices occurred in the last quarter.

[4] This is indicated by developments in the second half of the year—the deepening of the recession in the business sector while unemployment fell (Table 2.1); this policy is not sustainable (see Chapter 4).

public-sector domestic deficit. There is no consensus regarding the correct way to calculate this index, so that a common practice is to use indices that enable international comparisons to be made. Here we employ a widely-used method, developed at the International Monetary Fund,[5] according to which the fiscal impulse fell by 2.8 percent in 1997 and by 0.4 percent in 1998. However, there are signs that the economic environment is less favorable as regards the ability to persist with budgetary discipline; the increase in public-sector employment,[6] which tends to be permanent, and a rise in the the net public debt/GDP ratio (after a continuous decline in previous years), which embodies higher interest payments in the future. Consequently, in order to derive the overall effect of fiscal policy on aggregate supply, it is also important to examine whether there was credible fiscal consolidation in the last two years. The analysis in Box 2.2 shows that fiscal consolidation to date lacks the components that characterize credible fiscal consolidations, i.e., with a good chance of persisting.

The fiscal consolidation of the last two years lacks the features enabling it to persist.

There was a notable moderation of current consumption, which accounts for a third of private consumption, as well as of durables consumption.

The deceleration of private consumption in 1998 affected most of its components; particularly notable is the continued low level of expansion of current consumption, which accounts for a third of total private consumption (Table 2.A.5). The rate of expansion of current consumption has slowed in the last two years, in line with that of disposable income (Table 2.A.8); the slower rate of growth of current disposable income dampens the expansion of consumption, especially in households whose ability to borrow against future income is limited. Durables consumption has also slowed in the last two years. While part of the deceleration may be explained by the continued tapering off of the expansionary effect of the influx of immigrants that began in 1996, the fact that most of these purchases were made in the first few years after the immigrants arrived (and most of them had arrived by 1992) diminishes the weight of this explanatory factor. Tight monetary policy also acted to reduce demand for durables; the rise in real domestic interest rates to the level that prevailed throughout most of 1998 serves to cause such purchases to be deferred. Another factor serving to slow all components of private consumption was the hike in the tax rate, which exerts an effect both by reducing current disposable income and by lessening permanent income. The latter channel depends on households' assessments of the permanency of the hike in the tax rate. Note in this context that the public-sector wage increases in 1994 and 1995, and the ongoing rise in current transfer payments widened the budget framework and made it more rigid. This fact, together with the policymakers' commitment to the objectives of reducing inflation and minimizing risks to the financial sector and the balance of payments, reinforced households' assessments that the tax hikes of 1997 were not temporary, as they were required for strengthening fiscal consolidation.[7]

[5] The use of this method in the case of Israel is presented in Momi Dahan, 'A Fiscal Impulse Measure for Israel,' *Bank of Israel Economic Review*, 68, April 1994, pp. 23–38.

[6] This rise is evident in the Labor Force Survey, according to which employment rose by over 5 percent, most of it in education, health, and welfare and social services.

[7] Despite the increase in transfer payments, households' permanent disposable income declined, due to the excess burden of taxation.

Export growth slowed in 1998 (both with and without tourism, Table 2.2). The rise in manufacturing exports, which is the leading export item, slowed from 13.4 percent in 1997 to 10 percent in 1998, *inter alia* due to the influence of the marked deceleration of global trade, which was affected by the financial crisis in the Far East. The process of penetrating these markets, which accelerated in the wake of the peace agreements, is significant, as their share of Israel's exports increased; as a result, the dampening of exports to non-traditional markets was eventually translated into the deceleration of total exports, albeit not fully as exports were diverted to Europe (see Chapter 6). The deceleration in Israel's exports was far less severe than that in global trade, whose rate of expansion slowed from 9.9 to 3.3 percent. One of the main reasons for this was the ongoing improvement—for the third year in succession—in the terms of trade, due to the significant reduction in the price of imported raw materials, which outstripped the decline in export prices. This enabled the further expansion of high-tech manufacturing, which has accounted for an increasing share of exports in recent years due to the surge in business opportunities, ranging from the fruits of the influx of immigrants to progress in political developments in the region.

The slowdown of exports was far less marked than that of global trade, one of the main reasons being the improvement in the terms of trade for the third consecutive year.

In spite of a further fall in tourism exports, services exports continued to rise. After declining significantly in the previous two years, by an annual average of 7 percent, tourism dipped by 4.1 percent in 1998. The negative trend in tourism is an expression of the political-security uncertainty of the last few years, and may also be due to the persistent real appreciation (which prevailed for most of 1998).

The supply side

Business-sector product has risen by 2.6 and 1.8 percent in the last two years respectively, rates that reflect an average per capita decline of 0.3 percent. The main characteristic of the current recession is its long duration, although it seems to be less intense than the recessions of 1966–67 and 1976–77, when per capita GDP plunged. The low rate of GDP growth—evident in 1998 too (Table 2.1)—is notable in comparison with the rate at which factors of production rose: capital stock expanded by 7.7 percent and the labor force by 2.4 percent. Even making conservative assumptions about productivity trends, these growth rates imply a higher rate of expansion of potential output than actually occurred. Thus, the deviation from the level of potential output was greater in 1998 than in 1997, when it ranged between 2.6 percent of GDP (in a scenario assuming the acceleration of structural changes) and 5 percent of GDP (in the basic scenario).[8]

Business-sector product rose by 2.6 and 1.8 percent respectively in the last two years, reflecting an average per capita decline of 0.3 percent. The main feature of the current recession is its length.

The slower expansion of supply in the last two years emerged alongside the sharp fall in profitability, expressed in the persistent decline in the rate of return on net capital; this decline was arrested in 1998, and the rate of return on net capital dipped slightly, from 5.2 to 5.1 percent. The slowing of supply was affected by several factors, including the higher tax rate of the last two years and rise in the real interest rate of recent years. The fall in profitability was affected in the preceding two years by real appreciation

The expansion of supply slowed alongside the ongoing fall in the rate of return on net capital (more moderately in 1998), from 5.2 to 5.1 percent.

[8] See Box 2.2 in last year's edition of this publication.

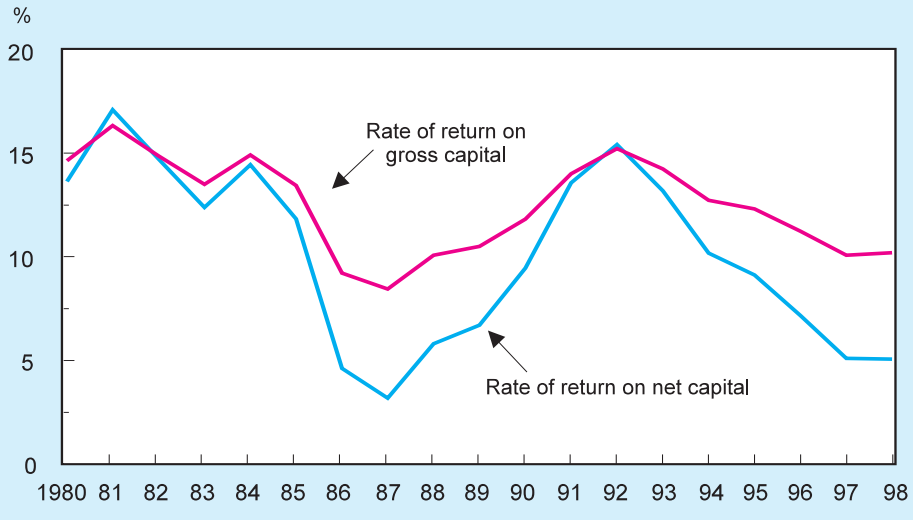
Table 2.3
Supply of Business-Sector Product, 1986–98

(rate of change, percent)

	1986–89	1990–95	1996	1997	1998
Gross capital stock	2.7	5.0	8.3	8.9	7.7
Labor input	2.0	6.5	4.7	1.7	–1.0
Civilian labor force *plus* foreign workers[a]	2.1	5.4	5.1	3.3	2.4
Total factor productivity	2.3	1.2	–0.3	–1.4	0.0
Rate of return on net capital	5.2	11.8	7.2	5.2	5.1
Roads capital stock per factor input unit[b]	0.9	–0.1	1.5	3.8	5.2
Share of tax on non-wage income in GNP	31.7	26.8	27.4	31.0	30.5
Real interest on overdrafts[c]	26.2	9.6	10.9	10.5	10.4
Real yield on 10-year bonds[d]	4.1	3.0	4.5	4.0	4.9
Average real interest[c,e]	—	7.8	7.0	7.1	8.0
Unit labor cost	2.9	–0.6	2.3	2.2	–0.2

[a] The labor force plus the labor inputs of Palestinian and foreign workers in accordance with their weight in the business sector.
[b] A factor input unit is weighted at 68 percent labor and 32 percent capital.
[c] Interest deflated by price of business-sector product (see Table 7.3).
[d] Data as of 1987.
[e] Data as of 1993.
SOURCE:Based on Central Bureau of Statistics data.

Figure 2.3
Rates of Return on Gross and Net Capital in Business Sector, 1980-98



SOURCE: Based on Central Bureau of Statistics data.

(beyond the annual average of 1990–95, Table 2.5);[9] this trend was halted during 1998, and there was even real depreciation towards the end of the year (see Section 3 below).

Box 2.1: Quantifying the Factors Affecting Investment

A pivotal factor behind the deceleration of demand in the last two years is the decline in business-sector investment (although in 1998 this was primarily in structures and inventory, alongside a rise in equipment investment, and the continued marked rise in capital stock, see Section 4). It is well known that investment tends to be pro-cyclical, rising in periods of prosperity and falling in a recession. Consequently, it is very difficult to tell whether the decline in investment was one of the causes of the recession or, by contrast, served to exacerbate it once it emerged. Here we present an attempt to quantify the contribution of macroeconomic and policy factors to the development of business-sector investment (per capita). It is based on the investment function that estimates the long-term relation (cointegration) between the relevant macroeconomic and policy variables and investment, while undertaking a comparative examination of the effect of those variables on the other components of the production function—labor input and productivity.[1] The change in these variables affects the rate of return on capital, and through it business-sector investment. This effect is expressed in both the long-run equation, which shows the effect of the

Variable	Average 1997–98	Value in 1996	Difference	Contribution to investment (rate of change)[d]
Tax rate[a]	41.2	39.8	1.4	–3.8
Public-sector domestic deficit[a]	4.1	5.2	–1.1	1.8
Real interest on overdrawn demand deposits[b]	11.45	11.20	0.25	–0.1
Immigration[c]	1.33	1.50	–0.17	–3.1
Total				–5.1

[a] Percent of GNP.
[b] Annual percent, deflated by CPI.
[c] Moving average, percent of population.
[d] The contribution is calculated by multiplying the difference (in previous column) by the relevant regression coefficient.

[1] Yaacob Lavi and Michel Strawczynski (1998), 'The Effect of Policy Factors on the Rise in Business-Sector Aggregate Supply and its Components: Factors of Production, and Productivity; Israel, 1960–95,' *Bank of Israel Discussion Paper Series* 98.07 (Hebrew).

[9] Real appreciation has been evident since the early 1980s; however, it cannot be determined whether the annual average appreciation of 1990–95 reflects a general long-term trend in Israel, as during this period the US government extended loan guarantees for the purpose of immigrant absorption.

investment trend, and the short-run equation, which expresses the process of convergence towards the long-run relation. The quantification below is based on the long-term equation, and hence reflects only the effect of the variables on the investment trend. It would have been desirable to take the variable representing the security-political uncertainty variable into account too, as it is relevant for calculating the contributions to changes in investment in the current decade, but methodical difficulties in measuring it prevented it from being used.[2] The results are given in the table above :

The tax rate: this has played a decisive part in reducing investment in the last two years. There are two complementary explanations for this: (i) the tax rate reflects the negative effects on the supply side; (ii) given the lack of progress with regard to reducing the public sector, the rise in the tax rate represents the policymakers' commitment—which has intensified in the last two years—to the inflation targets and stability, and is hence perceived as continuing. The repercussions of this are declining permanent disposable income and the moderation of growth expectations in the medium term.[3]

The public-sector deficit: [4] according to the framework of the model, this variable represents economic uncertainty, and hence its reduction partly offsets the effect of the tax rate. The combined effect of the tax rate and the deficit in the last two years has brought about a 2 percent fall in investment.

The tapering off of the effect of the influx of immigrants: this variable contributed significantly to the fall in investment, accounting for some 3 percent.

The interest rate: there was a marked increase in the real interest rate in 1995, since when a similar level of restraint (with fluctuations) has been maintained. Consequently, an examination of the effect of the real interest rate should review developments in previous years. A comparison with 1994 and 1995, given in last year's edition of this publication, showed that the rise in the real interest rate explained an annual decline of 0.8 percent of investment.[5]

[2] An attempt to examine the effect of this factor using a method based on direct foreign investment (incorporating the effect on this of the other factors) showed that the reduction of the security-political uncertainty increased investment in 1993–95, and that the positive effect vanished after that. An identical picture is obtained when the series of tourist entries is examined

[3] An example is the revised medium-term growth forecast in the National Accounts, which was reduced from 5 to 4 percent..

[4] As a result of the activity of the automatic stabilizers, the deficit rises in a recession and falls at a time of prosperity. Since investment is pro-cyclical, using the public deficit as such could produce an exaggerated effect. Rerunning the regression, this time using the fiscal impulse instead of the deficit variable, showed that the coefficient did decline slightly, although in quantitative terms the results were very similar.

[5] The calculation given in last year's *Annual Report* relied on a system based on the neo-classical approach to investment ('elastic accelerator'). The elasticity of investment relative to the interest rate is similar to that obtained in the regression presented here.

The persistent rise in the tax rate harms both potential and actual output.

The increase in the tax rate was an important component of the fiscal consolidation of the last two years (Box 2.2). The share of taxes in GNP eased in 1998, expressed in the lower tax rate on non-wage income (Table 2.3), but there was no change in the tax rate, which was raised in 1997.[10]

The policy factors and nominal rigidities that prevented real depreciation in 1997 weakened in 1998, and there was real depreciation, especially at the end of the year.

Real interest rates affect the supply side through two channels: the first is associated with capital inflow, which is motivated by interest-rate differentials, including the possibility of erring in assessing the premium on exchange-rate risk as perceived by the public—which was one of the reasons for the cumulative appreciation of the last two years beyond the 1990–95 average. Although there was pressure for real depreciation in 1997, this was not translated into a rise in import/export prices relative to business-sector product prices, due to the influence of policy factors and nominal rigidities in both the exchange rate and business-sector product prices (see Chapter 2 in last year's edition of this publication). These factors were not in evidence in 1998, and there was real depreciation, especially at the end of the year (Table 2.5); consequently, the low rate at which the nominal exchange rate rose in the first half of 1998 (relative to the annual average) appears to have predominated, while the effect of the real depreciation has not yet come into effect. In the past the lagged effect of depreciation (beyond the 1990–95 average) was expressed by a fall in profitability and exports in the traditional industries (textiles, leather and clothing, see Chapter 6). In 1998 the lagged depreciation appears to have been expressed in import substitution, the main variable reflecting this being vehicle imports, which rose significantly. The second channel through which real interest rates affect supply is their direct effect in raising the cost of credit to firms. During 1998 short-term interest displayed a high variance. For most of the year real interest on demand deposits and overdraft facilities was higher than in 1997, although on average it remained the same (Table 2.3). A relevant variable for examining developments in this sphere is the real interest rate weighted for the various credit sources (Tables 2.3 and 7.3) and adjusted by the GDP deflator. This variable rose in 1995, since when it has remained high (on average),[11] indicating that the restraint was effective despite the greater accessibility of sources of credit abroad in recent years.

Box 2.2: Fiscal Consolidation and the Supply Side

In the last few years various countries have undertaken fiscal consolidation in order to achieve a lasting reduction of the public-sector deficit and debt and to free resources for the business sector—thereby supporting sustainable growth. Fiscal consolidation has been found to be reliable (continuous) and to have a positive effect on supply when it is based on a cut in permanent expenditure items such as wages and transfer payments to households; in these cases slashing

[10] After negative statutory changes as of 1993, the trend reversed in 1997, since when legislative changes have increased tax receipts.

[11] The real interest rate was 6.8 percent in 1993 and 1994, compared with an annual average of 8 percent in 1995–98.

expenditure does not slow economic activity. The debate in the literature refers to the passthrough, seeking to ascertain whether it acts via an increase in demand (by increasing permanent income in view of the expected decline in taxes and reduced risk of financial crises) or by stepping up supply (expected reductions of tax rates and more efficient functioning of the labor market).[1]

Since the return to the path determined by the Deficit Reduction Law in the last two years was based on increasing the tax rate in 1997, and the public expenditure/GDP ratio rose in 1998 (see Chapter 5), an important question that has to be asked is, has there really been fiscal consolidation in the last two years, and if so, is it ongoing? Despite the increase in the domestic deficit in 1998, also reflecting a rise in the overall public-sector deficit (which is the relevant variable for a long-term analysis), it is customary in the literature to view the cyclically-adjusted deficit, which strips out the effect of the automatic stabilizers, rather than the simple deficit as the correct way to assess whether there has or has not been fiscal adjustment. As stated, using the method practised in the IMF[2] shows that the cyclically-adjusted deficit shrank by 2.8 percent in 1997 and by 0.4 percent in 1998. In order to determine whether fiscal adjustment is continuous, we examine developments as indicated by several studies.

(i) The studies mentioned in note 1 place most of the chances of the success of fiscal consolidation on its composition. If it is implemented by raising the tax rate rather than reducing expenditure items of a permanent nature (transfer payments and public consumption), as was done in Israel, there is less chance that it will persist. This is mainly because then the passthrough that stimulates economic growth does not operate, or even operates in reverse (note the quantification in Box 2.1, according to which reducing the deficit by raising the tax rate leads to a fall in investment).

(ii) Other studies[3] claim that when the economy is in equilibrium and the public sector expands the deficit by increasing expenditure or reducing taxes in some sectors, the fiscal consolidation aimed at returning to a sustainable path will be credible only if those expenditure items that were increased are cut again. In view of this contention, the question arises whether the wage hikes granted in 1994 and 1995 brought the economy closer to or further away from equilibrium. There is no unequivocal answer to this. Note that in the subsequent years there was no exceptional rise in the implicit index of public-sector consumption, although another test is expected shortly, when the wage agreeements for 1998 and 1999 are concluded.

[1] For a review of the literature, see A. Alesina and S. Ardagna, 'Fiscal Adjustments and Why They Can be Expansionary,' *Economic Policy*, October 1998, and F. Giavazzi and M. Pagano, 'Can Severe Fiscal Contractions be Expansionary? Tales of Two Small European Countries,' *NBER Macroeconomics Annual, 1990*.

[2] In order to strip out the effect of the automatic stabilizers, it is assumed that the elasticity of tax receipts to GDP is unitary.

[3] R. Perotti, R. Strauch and J. Von Hagen (1997), 'Sustainability of Public Finances,' *CEPR Discussion Paper*, No. 1781.

(iii) Other studies[4] focus on the link between the business cycle and fiscal policy: it has been found that during a depression it is difficult to keep public expenditure lower than in a time of prosperity; during prosperity there is a tendency to use most of the tax receipts that derive from higher than average growth; this finding casts doubt on the possibility that most of the fiscal adjustment will occur during a period of prosperity. Thus, according to these studies, the time when the economy comes out of a recession is a critical test of the chances that fiscal consolidation will persist.

[4] A description of the OECD countries is given in M. Gavin and R. Perotti, 'Fiscal Policy in Latin America,' *NBER Macroeconomics Annual 1997*; and in Zvi Hercowitz and Michel Strawczynski, 'Cyclical Bias in Government Spending: Evidence from the OECD,' Tel-Aviv University, working paper 6–99.

Unit labor cost fell by 0.2 percent in 1998, after rising by some 2.3 percent in the previous two years and declining by an annual average of 0.6 percent in 1990–95. This reduction constitutes a significant moderation in labor cost over 1997, when it increased in spite of the higher unemployment rate. An important factor explaining this development in the last two years is the delay in signing the wage agreements, together with the unexpected sharp decline in inflation, which started in 1997 and intensified during 1998 (until August). Wage rigidities are due to the fact that wage agreements refer to long periods, so that it is unlikely that they will rapidly internalize the nominal environment. Such rigidities affected unit labor cost in 1997, and the persistence of the recession together with the lagged internalization of the low nominal environment may explain the significant easing in labor cost in 1998.

Total factor productivity (TFP) remained unchanged in 1998, after a cumulative decline since 1993 (Table 2.A.9). This decline reflects the fall in labor and capital utilization, which are not measured directly but are expressed as a residual of productivity. It also reflects the cumulative effect of the relatively high tax/GDP ratio (Box 2.3).

Box 2.3: Total Factor Productivity

The decline in total factor productivity (TFP)—by a total amount of some 3 percent since 1992 (Table 2.A.9)—requires an explanation. Israel's successful absorption of previous influxes of immigrants (in the 1960s) was expressed in rapid GDP growth, based on a rise in TFP in the short run. The most recent influx from the former USSR is characterized by a relatively high level of human capital, which should have raised TFP.[1] One explanation for the decline in TFP in the 1990s connects it with the process of the immigrants' integration in the labor force and employment in jobs that are not commensurate with their training

[1] Yoram Ben-Porath (1989), 'The Combined Growth of Population and GDP; 1922–1982,' in *The Israeli Economy: Growing Pains*, Am Oved Publishers (Hebrew).

and human capital. Another is that it is due to the smaller number of workers from the Palestinian Autonomy and the administered areas permitted to work in Israel because of the security problems associated with their employment, and the process of substituting foreign workers for them (see the 1996 edition of this publication). Recent studies[2] of the effect of policy factors, immigration, and technology on TFP in 1960–96 stress the effect of the macroeconomic variables in both the short and long run (in this case, the 1990s). These studies found that policy variables such as expanding the roads infrastructure, reducing the tax rate, investing in education (represented by the average number of years of schooling of the civilian labor force), and keeping the inflation rate low (primarily in bringing it down from a high level) contribute to increasing TFP in the long run, and this will be translated into an increase in GDP. With regard to immigration, the possible passthrough leading to higher GDP appears to be associated with significant and sustained influxes of immigrants, signifying that a higher plateau has been reached with regard to the size of the economy. In the short run it was found that immigrants had a negative impact on TFP because of the adjustment costs connected with employing them. The share in total business-sector investment of investment in equipment, which represents the variable of the absorption of new production technologies, was also found to have a negative effect on TFP in the short run, because of adjustment costs. The rise in the share of employment in the services in business-sector employment also serves to depress TFP. In addition, the continuous increase in taxes has a negative effect on TFP in the short run, albeit to a lesser extent than in the long run. On the other hand, the decline in the inflation rate in the 1990s served to increase TFP. Another variable that affected TFP positively is the improvement in Israel's terms of trade (measured as the export/import price ratio), acting via the changes in the composition of factors of production, including the import of advanced technologies.

[2] Zvi Hercowitz, Yaakob Lavi and Rafi Melnick, 'The Impact of Macroeconomic Factors on Productivity in Israel: 1960–1996,' (manuscript) June 1998; Yaacob Lavi and Michel Strawczynski (1998), see note 1 in Box 2.1.

3. SUPPLY, DEMAND, AND THE REAL EXCHANGE RATE

The current-account deficit shrank in 1998.

Domestic use of resources moderated more than GDP, together with an improvement in the balance of payments: the current-account deficit shrank from 4.8 to 2.1 percent of national income.[12]

The real exchange rate, measured as the increase in export prices relative to that in import prices, rose by 0.3 percent in 1998, after many years in which it declined steadily.

[12] These figures refer to the new CBS definition, according to which capital transfers (column 4 in Table 2.A.16) are defined as capital flows, and hence are not included in the current account; this definition fits the new SNA approach, but not another one, which defines these transfers as gifts (albeit non-recurring), and so does not create liabilities against them; in this respect the new definition creates a break between the flows in the current account and the stock of the national external debt.

Table 2.4
Business-Sector Product, Demand and Supply, 1986–98

(rate of change, percent)

	1986–89	1990–95	1996	1997	1998
Actual business-sector product	4.6	7.2	5.6	2.6	1.8
Business-sector use of resources	4.3	9.1	6.7	2.9	2.6
Share of import surplus[a]	11.6	19.5	22.2	17.5	13.6

[a] Share of civilian import surplus in business-sector product, at constant prices.
SOURCE:Based on Central Bureau of Statistics data.

The real exchange rate rose by 0.3 percent in 1998, after falling for many years.

Import prices continued to fall relative to business-sector product prices, although at a far slower rate than in previous years—3.1 percent compared with 6 percent in 1996 and 1997. This positive development is connected with the strong forces acting to create real depreciation—the slowdown in domestic use of resources and contraction in the construction industry. A search for the policy factors and nominal rigidities that prevented real depreciation in the past shows that the main ones—the nominal interest rate (including the possibility of erring with respect to the risk premium), autonomous capital flows, and wages—acted in the opposite direction this year: (a) Following the decline in the inflation environment which began in the last quarter of 1997, nominal interest fell at the beginning of 1998; the nominal interest rate was reduced gradually in the first half of the year, and this served to stop the capital inflow due to the narrowing of the spread between domestic and foreign interest rates. The interest rate was lowered again in August, by a significant 1.5 percent, alongside the determination of a 4 percent inflation target for 1999 and the reduction of the lower limit of the exchange-rate band. Following the narrowing of the spread since the beginning of the year and the effect of the global financial crisis, there was sharp nominal depreciation, and there are good chances of it being translated into real depreciation due to the policy and moderate aggregate demand currently prevailing. These developments contrast with those of the preceding two years, when nominal interest (including, as stated, the risk premium as perceived by the public) served to depress the nominal exchange rate. (b) Net autonomous capital inflow (i.e., capital not motivated by short-term interest-rate spreads) in recent years has been due to two factors: on the one hand, Israel's integration in international financial markets, starting in the 1990s, along with other emerging markets, and on the other, the absence of significant capital outflow, because of asymmetry in restrictions and taxation (see Chapter 6). Autonomous capital flows, which in previous years exerted pressure for nominal appreciation, fell in 1998 due to the global financial crisis, so that their effect on the exchange rate eased. Note in this connection that financial investment by nonresidents declined, after rising continuously since the early 1990s. (c) The fall in unit labor cost in 1998, after having risen by 2 percent in each of the two preceding years, signified the gradual easing of nominal rigidities.

The policy factors and nominal rigidities that prevented real depreciation in the past—nominal interest, autonomous capital flows, and wages—acted in the opposite direction in 1998.

There was nominal depreciation towards the end of 1998 (Table 2.5), alongside a 5.4 percent increase in the exports/GDP deflator ratio in the second half of the year, compared with appreciation of 1.3 percent in the first half; hence, the economic effect of the (average) real appreciation has not yet been fully realized.

The economic effect of the real depreciation has not yet been fully realized.

Table 2.5
The Real Exchange Rate and the Traded Sector, 1986–98

(rate of change, percent)

	1986–89	1990–95	1996	1997	1998	1998 Jan–Jun[e]	1998 Jul–Dec[e]
Exchange rate (export terms)[a]	–5.1	–3.6	–4.0	–2.8	0.3	–1.3	5.4
Exchange rate (import terms)[b]	–6.7	–3.0	–6.7	–5.4	–3.1	–6.6	2.9
Nominal exchange rate against currency basket	16.9	9.6	3.5	4.3	9.6	4.4	23.0
Traded product of business sector[c]	1.9	5.8	2.5	0.6	1.8	—	—
Traded demand of business sector[c]	4.1	8.9	7.3	3.3	3.4	—	—
Terms of trade[d]	1.7	–0.6	2.8	2.7	3.5	5.6	2.4

[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] See Table 2.A.7.
[d] Ratio of export prices (excluding diamonds) to import prices (excluding diamonds).
[e] Rate of change (in annual terms) compared with previous six months.
SOURCE:Based on Central Bureau of Statistics data.

4. SAVING, INVESTMENT, AND THE CURRENT ACCOUNT

The rise in the national saving rate in 1998 was led by private saving, while public saving remained unchanged.

The national saving rate as a share of national income rose in 1998, after declining steadily since 1993, and reached 16.3 percent, after 15.8 percent in 1997 (Table 2.A.16). The rise was led by an increase in private saving, while public saving remained unchanged. A possible explanation for this is the increase in the unemployment rate in the last two years, which encompassed all educational levels (Table 4.3), encouraging households to save for reasons of caution.

Gross domestic investment accounted for 18.4 percent of total national income, compared with 20.6 percent in 1997. The decline in 1998 expresses a 7.6 percent fall in gross investment, after a 6.1 percent fall in 1997 and increases in the previous years. The level of investment remained high despite its decline, and gross business-sector capital stock at the beginning of 1998 was 7.7 percent higher than at the beginning of 1997.[13] Although this increase is smaller than it was last year (8.9 percent), it is still above the rise in business-sector product (1.8 percent).

The decline in gross domestic investment in 1998 encompassed most of its components; residential investment plummeted by 7.2 percent, reflecting the drop in demand for housing as a result of both the waning of the effect of the influx of immigrants in the early 1990s and the erosion of directed mortgages for eligible persons and the higher interest on nondirected mortgages. Investment in the principal industries fell by 1.6 percent. Investment in transport equipment plunged (by 18 percent), and investment in business-sector structures declined; there was a real rise (1.5 percent) in investment

[13] Gross business-sector capital stock at the beginning of 1999 was 6.6 percent above its level at the beginning of 1998.

Table 2.6
Investment in Inventory, 1995–98

(percent of business-sector product, previous year's prices)

	1995	1996	1997	1998[a]
Total investment in inventory	2.25	1.39	–0.13	–1.31
Fuel and diamonds	0.13	0.10	0.15	–0.10
Total investment excluding fuel and diamonds	2.12	1.29	–0.28	–1.21
of which Manufacturing	0.87	1.22	–0.24	0.13
Other	1.25	0.07	–0.04	–1.34

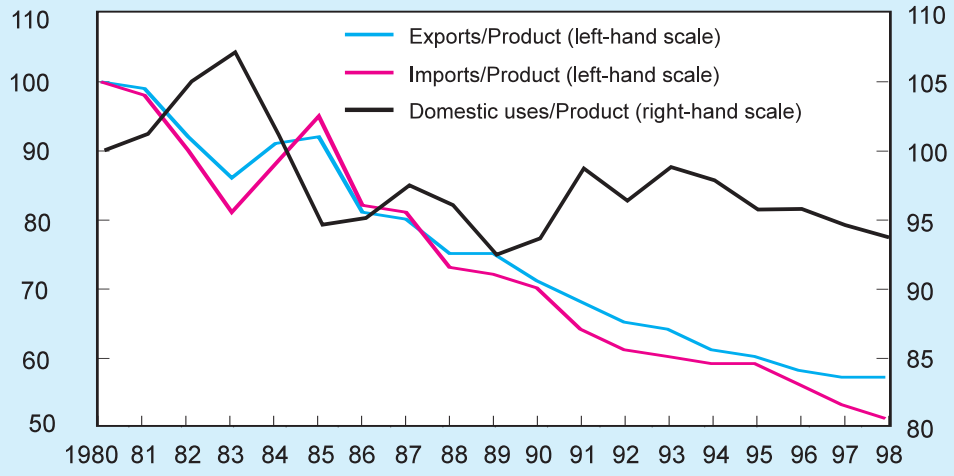
[a] In 1998 the decline in inventory in the 'Other' category was deducted from the sale of the Mirabilis software company, offsetting this against the imputation to inventory in 1997.

SOURCE:Based on Central Bureau of Statistics data.

in equipment, however, accompanied by a notable 8 percent rise in investment in software, continuing the rapid growth trend in the software industry. The increase in investment in equipment was supported by moderate rises in the prices of imported durable goods for most of the year (excluding the last quarter). Investment in inventory continued to contract in 1998, so that its share in business-sector product fell (by some 1.2 from 1997).

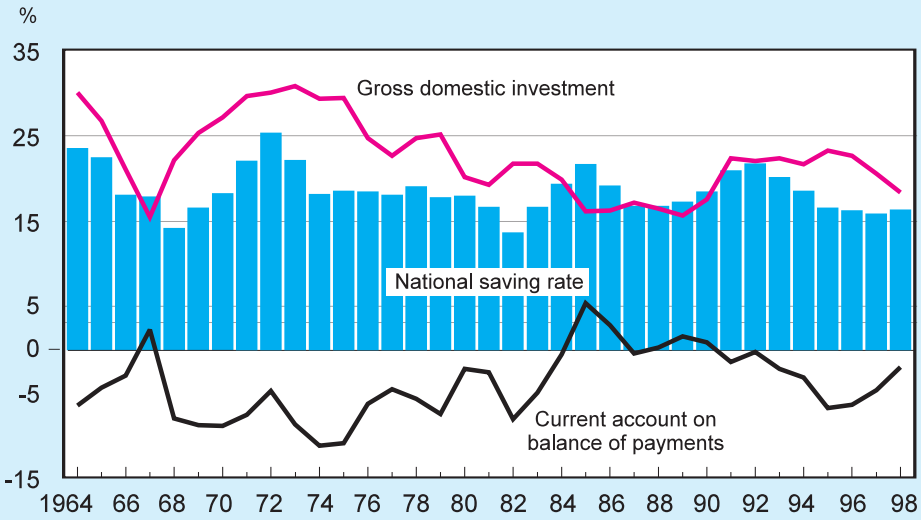
This decline in inventory investment reflects the slackening of investment in diamonds in view of the financial crisis in East Asia and the continuous fall (since 1996) in inventory investment in the principal industries excluding manufacturing. The rate of inventory investment in manufacturing (0.1 percent of business-sector product) edged up slightly in 1998, but still remains below its 1995–96 level, apparently because of the higher real interest rates of the last two years (Table 2.6).

Figure 2.4
Indices of Prices of Imports and Exports and of Domestic Uses Relative to Implicit Price Index of Business-Sector Product, 1980-98 (1980 = 100)



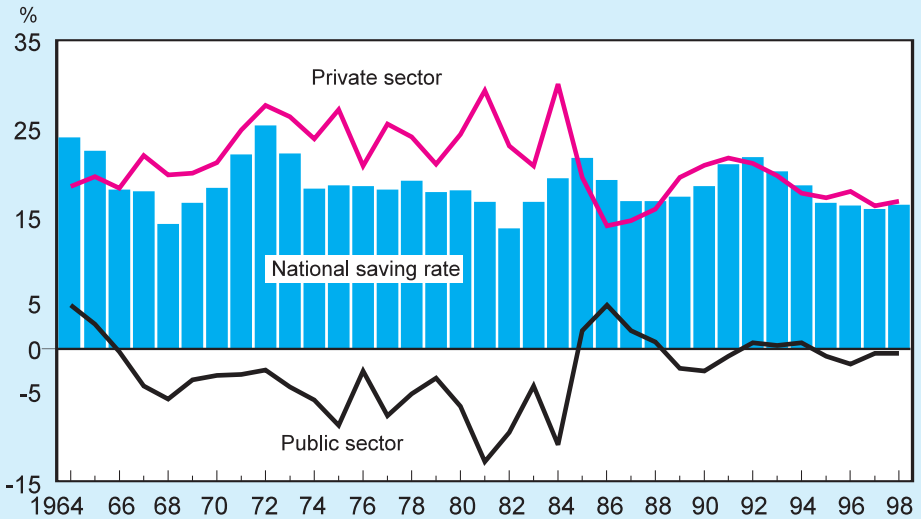
SOURCE: Based on Central Bureau of Statistics data.

Figure 2.5
National Saving Rate, Gross Domestic Investment, and Current Account on Balance of Payments, 1964-98[a]



[a] Percent of total national income, at official exchange rate.
SOURCE: Based on Central Bureau of Statistics data.

Figure 2.6
Gross National Saving Rate, by Sector, 1964-98[a]



[a] Percent of total national income, at official exchange rate.
SOURCE: Based on Central Bureau of Statistics data.

The decline in investment in the principal industries in general, and in the business sector in particular, should be reviewed in the light of the completion of the process of adjusting gross capital stock and the effect of policy factors on investment.

The decline in investment in the principal industries in general in 1998, and in the business sector in particular (the latter by 3.2 percent), should be examined in the context of the completion of the process of adjusting the growth rate of gross capital stock, as well as the effect of policy factors on investment (for quantification, see Box 2.1). The influx of immigrants increased the rate of expansion of business-sector product (which grew by an annual average of 8 percent in 1990–92), alongside a decline in the capital/GDP ratio and rise in the rate of return on gross capital—trends that encourage firms to expand investment and increase capital stock (Table 2.A.9). The marked increase in investment caused the investment/business-sector product ratio to rise from 12.1 percent in 1989 to 22 percent in 1994 (Figure 2.2). The higher investment was supported in the short run by direct aid from the government and the expansionary monetary policy of those years, as well as by expectations of further growth, thanks to the new investment possibilities which were supposed to open up as the peace process progressed.

The decline in the rate of return on net capital in the past reflected the utilization of business opportunities in the context of the influx of immigrants, and in recent years has also been influenced by tight monetary policy and greater political-security uncertainty. Nonetheless, the share of investment in business-sector product remains high.

Since 1993 the gross capital stock/business-sector product ratio has risen gradually, approaching its level before the influx of immigrants. Consequently, the rate of return on capital diminished, as did the worthwhileness of investment for firms. This trend intensified in the last two years as a result of tight monetary policy and greater political-security uncertainty. Nevertheless, the investment/business-sector product ratio remained high, and reached 20 percent in 1998. A closer examination of the components of this ratio shows that the proportion of capital stock of structures in business-sector product is approaching its level prior to the influx of immigrants, while that of equipment and machinery in it was significantly higher in 1998 than before the influx of immigrants. Note that the rise in the latter ratio should be examined in the light of its long-term trend, which has been rising since the 1970s due to technological advances and the persistent moderation of prices of imported intermediates.

Investment in the roads infrastructure rose markedly in 1998 (by 21.1 percent), influenced by the notable rise in investment by local authorities. Nonetheless, the ratio of roads capital stock to GDP (at current prices) remained lower than in the 1980s (see Table 2.A.18). The rise in the national saving rate, and especially the steep decline in the investment/total income ratio, brought about the further reduction of the net current-account deficit, which was 2.1 percent in 1998, down from 4.8 percent in 1997 after soaring in 1995–96 (Figure 2.5).

5. THE PRINCIPAL INDUSTRIES

l. Business-sector structure, product, and inputs

The recession continued in 1998, and the GDP growth rate, measured from the principal industries side, was only 2.8 percent, similar to the 1997 rate. The adjustment of inputs to the recession was not uniform: labor input declined by 0.7 percent, while capital stock continued to grow faster than GDP. However, the rate at which capital grew in 1998, 7.3 percent, was lower than in 1997, and investment fell below its 1997 level,

Table 2.7
Characteristics and Changes in Principal Industries, 1998

(1995 prices)

	Labor productivity[a]	Capital productivity[b]	Capital/ labor[c]	Real wage per employee post[d]
I. Relations betweeen product, inputs, and wages, 1998				
Manufacturing	2.8	0.4	7.3	5,679
Agriculture	1.7	0.4	4.2	2,668
Transport & communications	4.6	0.2	25.6	6,003
Construction	2.0	2.7	0.7	3,944
Commerce & services	3.2	2.0	1.6	4,076
Electricity & water	5.1	0.1	59.6	9,452
Total business sector	**3.0**	**0.5**	**5.6**	**4,504**
of which Goods	2.4	0.5	4.7	4,768
Services	3.5	0.6	6.2	4,465
of which Infrastructure	4.7	0.2	30.4	6,484
II. Intensity in 1998: industry indices vis-à-vis the business sector				
Manufacturing	94	72	131	126
Agriculture	58	76	75	59
Transport & communications	154	34	460	133
Construction	68	503	13	88
Commerce & services	107	374	29	91
Electricity & water	171	16	1,069	210
Total business sector	**100**	**100**	**100**	**100**
of which Goods	81	95	85	106
Services	115	103	112	99
of which Infrastructure	157	29	545	144

[a] Product per hour worked; NIS thousands a year per weekly hours worked.
[b] Annual product/capital stock; annual flow/stock at beginning of year (both in NIS).
[c] Capital/labor; capital in NIS per thousand weeekly hours worked.
[d] Monthly wage per employee post; NIS per post.
SOURCE: Based on Central Bureau of Statistics data.

The recession persisted and labor input declined. Capital stock continued to rise, although more slowly than in recent years.

after rising throughout the 1990s. The increase in capital compensates for the decline in the capital/employee ratio, due to the steep rise in labor input following the influx of immigrants. Business-sector capital as discussed here includes a component that develops in accordance with firms' business considerations, as well as the infrastructure (e.g., roads, and sea- and air-ports), which constitutes a long-term investment serving the economy as a whole, and in a recession should be intensified in order to close gaps while utilizing unused capacity. In view of the slow growth of the last two years, the relatively rapid increase in the tradables industries —manufacturing, sea freight, export-oriented commerce and services[14] (mainly software), and agriculture—is notable; by contrast, the product of the construction industry, which is not tradable, contracted.

[14] Though tourism exports declined.

Table 2.7 (continued)
Characteristics and Changes in Principal Industries, 1998

(1995 prices)

	Labor productivity	Capital productivity	Capital/ labor	Real wage per employee post	Rise in product price vis-à-vs business sector
III. Cumulative change in 1997 and 1998 (percent)					
Manufacturing	8.3	–10.8	21.5	12.1	1.2
Agriculture	2.7	3.3	–0.6	8.9	2.2
Transport & communications	17.6	–1.9	9.2	5.0	–2.8
Construction	0.0	–25.5	34.2	8.8	0.6
Commerce & services	0.6	–16.8	20.9	3.5	–0.2
Electricity & water	7.9	0.7	7.2	2.8	–0.3
Total business sector	**4.9**	**–9.9**	**16.5**	**7.0**	**0.0**
of which Goods	5.4	–12.5	20.5	10.9	1.1
Services	3.4	–8.4	12.8	3.4	–0.7
of which Infrastructure	16.2	–1.2	17.6	5.1	–2.4
IV. Change in 1998 (percent)					
Manufacturing	4.5	–3.9	8.7	5.5	–0.1
Agriculture	4.4	4.1	0.2	4.3	6.8
Transport & communications	7.8	–0.3	8.1	2.0	–3.6
Construction	3.2	–13.7	19.6	3.9	0.7
Commerce & services	1.7	–8.8	11.5	1.2	0.3
Electricity & water	2.1	0.4	1.7	0.2	0.2
Total business sector	**3.8**	**–4.6**	**8.8**	**3.4**	**0.0**
of which Goods	4.4	–5.3	10.3	5.3	0.6
Services	2.8	–4.1	7.2	1.3	–0.3
of which Infrastructure	7.0	–0.2	7.2	2.1	–3.0

Definitions

Product in NIS billions.
Labor input; millions of weekly hours worked.
Capital: NIS billion at beginning of year, excluding intangible assets.
Goods industries: manufacturing, agriculture, construction.
Service industries: transport and communications, electricity and water.
Infrastructure industries: transport and communications, electricity and water.

As economies develop, the share of goods falls, mainly because of the decline in the proportion of agriculture and rise in that of services.

The current structure of Israel's business sector is the result of long-term developments. The way an economy develops is generally dictated by industrialization, urbanization, and the expansion of international trade, as described by Kuznets over forty years ago. Alongside these developments, the share of demand for food drops as income rises. Thus, as economies grow, the goods/GDP ratio shrinks—particularly due to the falling share of agriculture—and the services/GDP ratio rises. The growing tendency of firms to outsource services to specialized companies has also contributed to this. While the share of manufacturing tends to rise alongside the process of devel-

opment, at a later stage this trend tends to come to a halt.[15] In recent years there have also been revolutionary technological changes, giving rise to the information revolution while integrating communications and computerization. These processes are long-term, but the structural changes are evident in the relatively short run.

Goods account for 36 percent of business-sector product, and services for 64 percent.

Goods (manufacturing, agriculture, and construction) accounted for 36 percent of business-sector product in 1998, while services (commerce, business services, and infrastructure services—communications, transport, and electricity and water) accounted for 64 percent. In goods, the share in business-sector product of manufacturing (24 percent) and construction (10 percent) is notable, while that of agriculture is minute (less than 3 percent, Figure 2.7). In services, the share of commerce and business services is considerable, accounting for half the business sector (twice that of manufacturing); transport and communications account for 12 percent, while the share of electricity and water is minuscule (2 percent).

Production in the various industries is not uniform, as is indicated by differences in their relative capital and labor intensities, capital and labor productivity, and human capital employed (and hence in wage per employee post). The larger an industry and the more rapid its growth, the more pronounced is the effect of the intensity of its factors of production on the intensity and productivity of the entire business sector. The labor inputs employed by the services industries are low relative to their share of business-sector product (accounting for 57 percent of labor compared with 64 percent of product; Tables 2.A.10 and 2.A.14), so that their labor productivity (product per hour worked) is significantly higher than in the business sector as a whole (about 15 percent, section ll of Table 2.7). This finding is important, as the share of the services in business-sector product is rising, so that its rapid growth increases productivity.[16]

Labor productivity is higher in services than in goods industries, but productivity has risen less in the services in the long run.

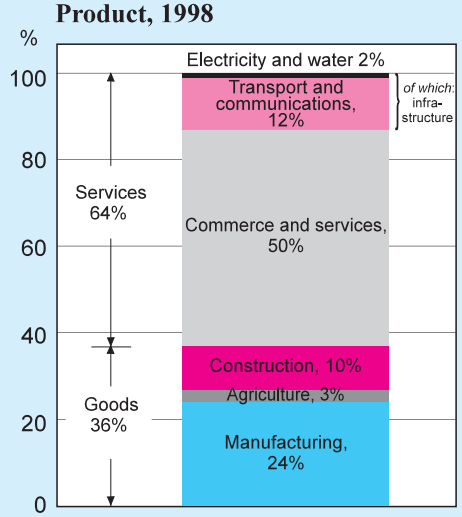
Labor productivity has risen less in the services than in goods in the last two years, but is still positive (2.8 percent, section lll of Table 2.7). High labor productivity in the services derives mainly from the infrastructure industries, in which capital intensity is highest, and wage per employee post is also very high relative to the entire business sector (section ll of Table 2.7).[17] The high wage in these industries is also explained by their structure—public monopolies. Note that productivity in the commerce and services

[15] H. Chenery and M. Syrquin, 'Typical Patterns of Transformation,' in H. Chenery, H.S. Robinson and M. Syrquin (eds.), *Industrialization and Growth*, Oxford University Press, 1986.

[16] The finding that productivity is greater in the services than in the economy as a whole also applies to previous years, but since labor productivity has risen less in the services than in goods, total productivity was adversely affected by the increased share of the services. On this subject and the difficulty of measuring productivity in the services because of problems in measuring their product, see Z. Griliches, 'Productivity, R&D, and the Data Constraint,' *A.E.R.* March 1994, 84 (1), Z. Griliches (ed.), 'Output Measurement in the Service Sectors,' *NBER Studies in Income and Wealth*, Vol. 56, University of Chicago Press, 1992; R.J. Gordon, 'Problems in the Measurement and Performance of Service-Sector Productivity in the US,' in Andersen et al. (eds.), *Productivity and Growth*, Reserve Bank of Australia, 1995.

[17] Transport capital incorporates transport equipment, which is not included in the definition of infrastructure.

Figure 2.7
Structure of Business-Sector Product, 1998



industry alone (excluding infrastructure) is higher than in the goods industries, even though capital intensity and wages in it are relatively low.

Construction and agriculture account for the relatively low capital intensity of the goods industries, despite the fact that this has risen in the last few years, and product and wage per employee post are relatively low in those two industries. Manufacturing, on the other hand, is capital-intensive and the wage per employee post there is higher.

Developments in 1997 and 1998 are similar in many respects, because of the combination of the long-term processes described above and the concurrent recession. The recession harmed the goods industries more, and in the last two years they grew by only a cumulative 1.4 percent, alongside a cumulative 3.8 percent drop in labor input. The services industries grew by 8 percent in that period, despite the recession, and their labor input rose by 5 percent. As a result, labor productivity in goods rose by a cumulative 5 percent in 1997–98, and in services by only 3 percent. The larger increase in labor productivity in goods is in line with other features—capital per employee, which rose rapidly in goods industries and more slowly in services (21 and 11 percent respectively), and wage per employee post, which also grew more steeply (11 and 3 percent respectively). Among the goods industries, manufacturing product increased by a cumulative 4.5 percent in the last two years and agricultural product by 2 percent, while construction product fell by some 6 percent. The decline in construction was expected because of the contraction of needs as immigration to Israel waned. In services, the rapid expansion of the two infrastructure industries—by 14 percent each—is notable, while the entire commerce and services industry has grown by 7 percent in the last two years (Table 2.A.10).

The recession of the last two years had a more deleterious effect on growth in the goods industries than in the services.

In the construction industry the capital/labor ratio has risen by 34 percent in the last two years, twice its average growth rate in the entire business sector. This appears to reflect technological advances and is the combination of a 5 percent decline in labor input and 27 percent rise in capital stock in construction, compared with a 17 percent rise in business-sector capital. The capital/labor ratio is thus above its level prior to the influx of immigrants.[18] This seems to be due to a combination of the rise in the capital intensity of various products and the greater share of capital-intensive products.[19] In

The capital/labor ratio soared in the construction industry.

[18] Capital intensity is now 65 percent higher than it was in 1989–90, before the influx of immigrants.

[19] Such as the transport infrastructure, which is a bridge to modern and high-tech industry.

manufacturing, too, there has been a marked rise in the capital/labor ratio (by 22 percent), of labor productivity, and of wage per employee post—by far exceeding the business-sector average.

The price of the product of the goods industries rose more than that of the services.

Both in 1997 and in 1998 the price of the product of the goods industries rose more than that of average business-sector product, while that of the services rose by less. The relatively low price of infrastructure services product, due to the very low price increase in communications, and in 1997 the relative price-reduction in electricity and water, is notable. The price of agricultural product relative to business-sector product rose by 7 percent in 1998.

2. Manufacturing

Main developments

Manufacturing product grew by a real 2.8 percent in 1998.

Manufacturing product, which constitutes 24 percent of total business-sector product, rose by a real 2.8 percent in 1998, compared with an increase of 1.7 percent in 1997—from NIS 55.4 billion (at 1997 prices) in 1997 to NIS 57 billion in 1998. The decline in both the number of employees and labor input (hours) continued in 1998 (Table 2.8), and the combination of the rise in product and the contraction of labor input was expressed in a 4.2 percent increase in labor productivity. Capital stock rose more slowly in 1998 due to the fall in real investment in 1997,[20] expressed in the 1.4 percent increase in total factor productivity. In 1998 manufacturing investment grew by 4.2 percent, comprising a 13.3 percent rise in investment in equipment and an 18.2 percent decline in investment in structures and of 11.5 percent in transport equipment. The rise in investment in equipment—most of it (80 percent) in imported equipment—appears to have been because prices of imports (in local currency) rose more moderately than those of domestic manufactures (in the first three quarters).

As in 1997, the rise in manufacturing product in 1998 stemmed mainly from exports, while investment made a negative contribution.

As in previous years, the growth of manufacturing product in 1998 was due to exports, while investment detracted from this, primarily due to the decline in construction demand and the absence of contribution by either private or public consumption.

Manufacturing exports increased by 11.5 percent in 1998 (Table 2.8), mainly reflecting a 16 percent rise in high-tech exports, which this year accounted for 73 percent of all exports, expressing dependency on the comparative advantage of knowhow and human capital. In the traditional industries, food exports continued to decline in 1998, in line with the trend of the last two years, while exports of the textiles and clothing industries rose, mostly to the US. An analysis of manufacturing exports by target markets shows that the lower growth rate of exports in 1998 was due largely to the negative contribution of the East Asian countries, compared with the positive contribution of the European Union countries and the US. The contraction of exports to Russia and the slower growth rate of exports to Brazil did not have a marked effect on manufacturing exports because of their small share in total manufacturing exports.

[20] The rise in capital stock is measured from the beginning of 1997 to the beginning of 1998.

Table 2.8
Manufacturing Industry Indicators,[a] 1981–98

(rate of change, percent)

	1981–85	1986–90	1991–96	1997–98	1994	1995	1996	1997	1998
Manufacturing product	3.7	2.0	7.2	2.3	7.4	8.4	5.4	1.7	2.8
Manufacturing exports (volume)	9.2	6.8	9.3	12.6	13.9	3.5	7.5	13.7	11.5
Labor input (hours)	1.2	–1.9	4.2	–1.5	4.2	3.6	2.0	–1.8	–1.3
Number of employed persons	1.4	–1.5	3.5	–1.0	3.6	3.8	1.6	–1.0	–1.0
Gross (real) capital stock[b]	4.6	3.8	7.0	8.1	8.1	10.1	9.6	9.4	6.8
Gross (real) investment	9.6	3.3	16.0	–3.8	23.2	5.5	7.6	–11.8	4.2
Product per hour worked	2.4	4.0	2.8	3.9	3.1	4.6	3.3	3.6	4.2
Total productivity	0.3	2.0	1.9	0.5	1.8	2.4	0.8	–0.3	1.4

[a] Excluding diamonds.
[b] At beginning of year.
SOURCE: Based on Central Bureau of Statistics data.

According to most of the indicators of profitability in manufacturing, its decline since 1995 has been arrested.

According to most indicators of manufacturing profitability, the decline in profitability that began in 1995 was checked in 1998 (Table 2.9). The terms of trade improved, with local-currency prices of exports rising by 6.5 percent, and import prices by 0.7 percent. Since manufacturing exports have a high share of imported inputs, the improvement in the terms of trade served to make them less expensive and more profitable.

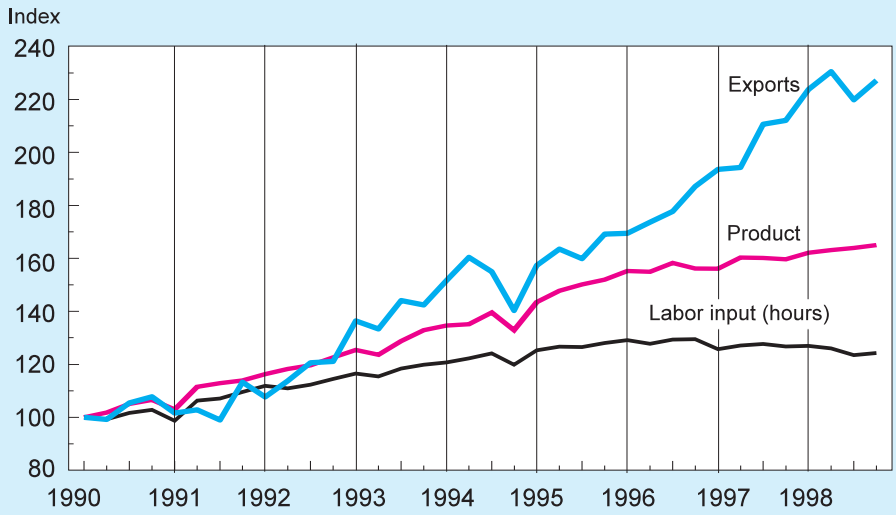
Costs per hour worked rose by some 4 percent in real terms (product price)[21] and labor productivity rose, as stated, by 4.2 percent, so that unit labor cost hardly changed at all, after falling by about 1 percent in 1997. The rate of return on gross and net capital declined relative to 1997 and 1996 (Table 2.9).

In order to examine whether the rise in the share of the high-tech industries in manufacturing product and labor input persisted in 1998, manufacturing was divided into three categories: traditional, mixed, and high-tech.[22] The rise in product was due to the positive contribution of the high-tech industries, and expresses Israel's comparative advantage in knowhow and human capital, compared with the negative contribution to GDP growth of the traditional industries (Table 2.10). A closer examination of these developments in the last three years shows that the decline in the share of the traditional industries in total manufacturing product was not uniform across

[21] Manufacturing product prices are not measured directly but are derived from input and output prices.

[22] This classification was made for 74 three-digit manufacturing industries, as regards both product and labor input. Consequently, there are discrepancies between the results of the classification given here and those of the classification made in previous years (by two-digit industry).

Figure 2.8
Product, Exports, and Labor Input (Hours),[a] 1990-98



[a] Quarterly index; base: 100 = 1990.
SOURCE: Based on Central Bureau of Statistics data.

industries, After a cumulative 10 percent decline in 1996 and 1997, when textiles and clothing made the greatest contribution to the decline in the share of the product of the traditional industries, these industries appear to have rallied in 1998 (Figure 2.9). Their contraction in recent years appears to have come in the wake of Israel's increasing exposure to competing imports from countries where production costs are considerably lower. In 1998, however, the effect of declining construction demand on the industries providing it with inputs had a marked effect. The growth rate of industries associated with construction[23] began to decline in 1996, and in 1997 there was a volume fall, which intensified in 1998. All in all, these industries made a negative contribution of about 1 percent to manufacturing product. The decline in 1998 in the share in manufacturing input of industries providing construction inputs seems to be due to the easing of domestic demand as the expansionary effect of the influx of immigrants waned.

The textiles and clothing industry rallied in 1998. The effect of falling con-struction demand on the industries producing its inputs was notable, however.

Factors of production—capital and labor—and productivity

In order to analyze developments in manufacturing in the last few years in general, and in 1998 in particular, the various industries were classified in two ways. In the first classification the high-tech, mixed, and traditional manufacturing industries were divided up as follows: the high-tech group, consisting of the industries employing a significant proportion of persons with a higher than average level of human capital,[24]

[23] These include the two-digit non-metallic products industry and the three-digit construction-allied carpentry, quarrying, earthworks, and metalwork industries.

[24] Engineers, other graduates, practical engineers and technicians. This industry is usually characterized by a high level of human capital, and a relatively high level of R&D investment.

Table 2.9
Indicators of Profitability in Manufacturing, 1991–98

(rate of change, percent)

	1991–96	1997–98	1994	1995	1996	1997	1998
Real unit labor cost[a]	0.2	–0.6	2.0	6.4	1.4	–1.0	–0.2
Real cost per man-hour[a]	3.1	3.2	5.1	11.2	4.7	2.5	3.9
Output/input price ratio	0.1	1.8	–0.8	–3.9	0.5	3.1	0.6
Export/wholesale price ratio	–1.9	0.1	–2.2	–4.9	–3.2	–1.3	1.4
Rate of return on gross capital (%)[b]	13.5	12.3	13.9	13.0	12.5	12.8	11.8
Rate of return on net capital (%)[c]	12.3	9.1	12.9	10.8	9.7	10.1	8.2
Real interest weighted by product prices		8.0	11.4	15.0	8.1	3.5	12.4
Change in industrial share-price index[a]	16.1	9.8	–17.7	–10.4	–4.4	22.2	–2.5

[a] At product prices.
[b] Ratio of product (*less* labor costs) to capital stock (including vehicles).
[c] Ratio of product (*less* amortization and labor costs) to capital stock (including vehicles, *less* amortization).
SOURCE: Based on Central Bureau of Statistics data.

and the traditional group comprised industries employing a significant proportion of persons with a lower than average level of human capital; the other industries were included in the mixed group. In the second classification the two-digit manufacturing industries[25] were divided into three groups by the share of exports in their total sales, on the basis of the 1995 Survey of Manufacturing and Crafts. The industries in which exports accounted for over 40 percent of sales were included in the export industries group, and those in which they were less than 20 percent were included in the group producing mainly for the domestic market; the remaining industries were included in the intermediate group.

The rise in manufacturing product was accompanied by a fall in both the number of employed persons and labor input.

As stated, the rise in manufacturing product was accompanied by a decline in both the number of employed persons and labor input (Table 2.8). Most of the contraction in labor input occurred in the traditional industries, especially leather and its products, basic metals, and wood and its products (Table 2.A.20). The decline in construction demand led to a 7 percent fall in labor input in construction-allied industries. In most of the high-tech industries there were steep increases, especially in electronic communications equipment and electrical and electronic equipment. The persistence of the recession in 1998 appears to have exacerbated the trend of laying off employees and reducing the number of hours worked, particularly in the traditional industries, and this was responsible—at least partially—for the rise in labor productivity and arrest of the decline in profitability.

In order to obtain an indication of both the trend and extent of the difference between the number of employees dismissed and the number finding employment, we calculated an index of the net change in employment, based on the difference between the rate of

[25] As there are no data on export prices at the three-digit industry level, the classification here is by two-digit industry.

Figure 2.9
Manufacturing Product in Selected Industries,[a] 1994-98

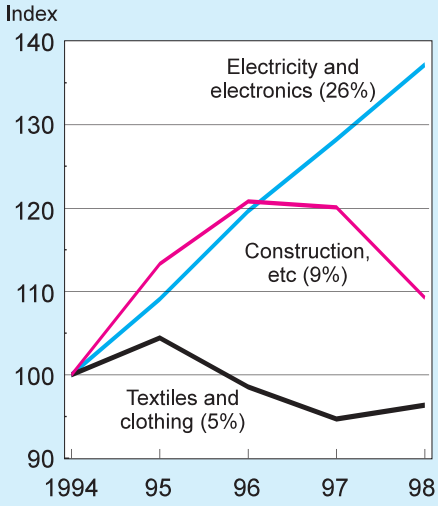
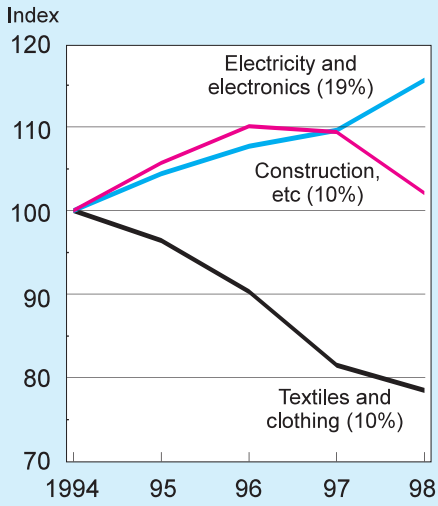


Figure 2.10
Labor Input in Hours in Selected Industries,[a] 1994-98



[a] Index: 100 = 1994; share of industry in 1998 in parentheses.
SOURCE: Based on Central Bureau of Statistics data.

change in the number of persons taken on by firms that expanded or opened and that in the number of persons dismissed by firms which contracted or closed in 1998 compared with 1997. We found that for manufacturing as a whole this index was negative in 1998 (–0.5 percent). In the basic metals, wood and its products, and metal and its products industries this index was extremely negative, and the number of dismissals was far higher than the number of new employees. In the electronic components, electronic communications equipment, and control and supervision equipment industries this index was highly positive.

Total gross capital in manufacturing rose by 6.8 percent in 1998, a slower rate than in the preceding four years.

Total gross capital in manufacturing rose by 6.8 percent in 1998 (Table 2.8). The classification into high-tech, mixed, and traditional industries[26] shows that the growth rate of capital stock slowed in comparison with the four previous years (Table 2.10), due to the 12 percent decline in investment in 1997. This decline was the result of both the adjustment of capital stock to the tapering off of the expansionary effect of the influx of immigrants and the political-security uncertainty. In 1998 manufacturing investment rose by 4.2 percent (Table 2.A.22), comprising a 13.3 percent increase in investment in equipment alongside a decline of 18.2 percent in investment in structures and of 11.5 percent in transport equipment investment. The rise in equipment investment, due mainly to imports (some 80 percent), appears to be explained by the more moderate increase in import prices (in NIS) than in those of manufacturing product (in the first three quarters of 1998).

[26] As with exports here, too, the classification is by two-digit industry, because of the lack of information at the three-digit industry level.

Profitability

According to most indicators of profitability, the declining trend evident since 1995 was checked in 1998 (Table 2.9). Continuing the trend of 1997, manufacturing terms of trade[27] improved this year: export prices fell by 3.4 percent (in dollar terms) while import prices dropped by 8.6 percent. This development, together with nominal depreciation, caused the local-currency price of exports to rise by 6.5 percent and of imports by 0.7 percent in 1998. Since manufacturing exports have a large share of imported inputs, the improvement in the terms of trade served to reduce manufacturing costs and increase profitability.[28]

As in 1997, the terms of trade of manufacturing improved in 1998.

With regard to costs, note that real labor cost consists of unit labor cost rather than real wages (which rose in 1998). Nominal costs per hour worked fell by some 15 percent in 1997 and by 10 percent in 1998, and this change—given the 6 percent rise in the price of gross manufacturing product—was expressed in a 3.9 percent real rise in labor costs (in produce prices), after increases of 2.5 and 4.7 percent in 1997 and 1996 respectively. The real rise in cost per hour worked adjusted by labor productivity, which grew by 4.2 percent, is expressed by almost unchanged unit labor cost, after a 1 percent decline in 1997.

Unit labor cost remained virtually unchanged in 1998, after a 1 percent dip in 1997.

In order to assess the effect on profit of the cost of credit to producers, it is necessary to weight the cost of the various kinds of credit: unindexed, CPI-indexed, foreign-currency, and foreign-currency-indexed. Real credit to producers (the cost of nominal credit *less* the price of manufacturing product) rose in 1998 due to the sharp depreciation of the last quarter. On the other hand, a long-term analysis shows that the real cost of credit fell from 10.8 in 1997–98 (annual average) to 8 percent in 1993–96. This change was affected by the rise in the share of finance originating from the international capital market.[29] Note that tradables account for a large part of the manufacturing industry, so that the risk of taking foreign-currency credit is relatively small.

Demand and output in the various industries

As in 1997, the increase in manufacturing product in 1998 was due to exports,[30] compared with the negative or neutral contribution of domestic demand, which was affected by the ongoing recession. Investment made a negative contribution to manufacturing product, as it had in 1997, mainly because of the decline in construction demand. Private consumption, which rose more moderately in 1998, and public-sector demand (which accounts for less than 4 percent of demand) did not contribute to the rise in manufacturing product.

The contribution of investment to manufacturing product was negative, mainly due to the decline in construction demand.

[27] The improvement in the terms of trade has a positive effect on product prices: the steeper rise in export prices, which affect the price of output, than in import prices, which affect input prices, was partly expressed in higher product prices.

[28] For the effect of real appreciation/depreciation on manufacturing, see Chapter 6.

[29] Most financing was implemented via the banking system.

[30] The source of the contribution of use of resources described below is the input-output table, calculated by the CBS. Note that the rates of change of manufacturing product in accordance with that table differ from those calculated by the Industrial Department of the CBS, so that the reference here is to trends rather than to absolute figures.

Table 2.10
Changes in Manufacturing Industry, 1994–98

(rate of change, percent)

	Classification A					
	High-Tech industries	Share in total manu-facturing	Mixed industries	Share in total manu-facturing	Traditional industries	Share in total manu-facturing
Product						
1995–1996	8.0		6.3		5.9	
1997–1998	6.0		0.3		–1.8	
1995	7.6	45.6	9.5	12.6	8.9	41.8
1996	8.3	46.9	3.2	12.4	2.9	40.8
1997	4.4	48.1	–1.0	12.0	–0.5	39.9
1998	7.6	50.4	1.7	11.9	–3.1	37.7
Labor input						
1995–1996	4.3		3.9		1.6	
1997–1998	1.4		–0.3		–3.9	
1995	5.0	34.6	5.7	12.2	2.6	53.2
1996	3.7	35.3	2.0	12.2	0.7	52.6
1997	0.5	36.0	–0.8	12.3	–3.4	51.7
1998	2.4	37.4	0.3	12.5	–4.3	50.1
Product per hour worked						
1995–1996	3.5		2.4		4.2	
1997–1998	4.5		0.6		2.2	
1995	2.5		3.6		6.2	
1996	4.4		1.2		2.2	
1997	3.9		–0.2		3.0	
1998	5.1		1.4		1.3	
Physical capital stock						
1994–1996	10.7		6.4		9.7	
1997–1998	10.0		6.1		6.8	
1994	9.8	46.1	4.5	26.5	8.8	27.4
1995	11.1	46.5	7.2	25.8	11.3	27.7
1996	11.1	47.2	7.5	25.3	9.1	27.6
1997	11.5	48.1	7.1	24.7	8.0	27.2
1998	8.4	48.8	5.1	24.4	5.6	26.9
Exports						
1994–1996	9.0		10.5		2.7	
1997–1998	18.5		3.0		–1.4	
1994	15.4	66.3	13.1	18.5	7.8	15.2
1995	0.9	64.5	11.8	20.0	5.3	15.4
1996	10.7	66.5	6.5	19.9	–5.0	13.7
1997	20.6	70.4	3.6	18.1	–4.1	11.5
1998	16.4	73.1	2.4	16.5	1.4	10.4

A by-industry examination shows that the product of the high-tech industries rose by 8 percent in 1998, while that of the traditional industries fell by about 3 percent. This decline was not uniform across all the traditional industries, and stemmed primarily from the sharp drop in industries producing construction inputs. This was offset this year by the recovery of the textiles and clothing industry (Figures 2.9 and 2.10).

Table 2.10 (continued)
Changes in Manufacturing Industry, 1994–98

(rate of change, percent)

	Exports (classification B)					
	Export industries	Share in total manufacturing exports	Intermediate industries	Share in total manufacturing exports	Industries producing mainly for domestic market	Share in total manufacturing exports
1994–1996	7.5		11.3		6.6	
1997–1998	16.9		6.3		0.9	
1994	12.0	67.0	19.4	24.8	12.3	8.2
1995	0.7	65.1	9.3	26.1	10.2	8.8
1996	9.6	66.4	5.4	25.6	–2.8	7.9
1997	19.9	70.0	3.0	23.2	–1.9	6.8
1998	13.9	71.0	9.5	22.7	3.7	6.3

SOURCE: Based on Central Bureau of Statistics data.

Despite the rise in the product of the high-tech industries in 1998, the growth rates of the electrical and electronic industries has been declining in the last three years. The slowing of the rate at which the product of these industries rose comprises a slower growth rate in the product of the electronic components industry and rapid acceleration in that of the electric machinery industry. The product of the chemicals and fuel products industry soared in the first quarter of 1998, apparently as a result of the Gulf crisis.

The decline in demand in the construction industry caused the product (for the domestic market) of industries producing construction inputs to contract by 10 percent, and labor input (hours) to fall by 7 percent. By contrast, the textile and clothing industry rallied in 1998, as regards both product and exports, after falling in the preceding two years. Labor input in this industry shrank in 1998, too, (Figure 2.10), albeit less sharply than in 1996 and 1997 (Tables 2.A.19 and 2.A.20). The easing of domestic demand, the process of exposure to competing imports, and the globalization process, combined with labor costs which are considerably higher than in the neighboring countries (Jordan, Egypt and Turkey) led several companies, especially in textiles and clothing, to transfer some of their activities to those countries. Factories and companies that survived three years of recession in the industry may have reduced labor input and introduced technological improvements, causing their product and productivity to rise.

The slower growth rate of exports in 1998 stemmed from the negative contribution of the countries of East Asia, which was partly offset by the positive one of the EU and the US.

An analysis of manufacturing exports by target market shows that the decelerating growth rate of exports in 1998 stemmed from the negative contribution of the countries of East Asia (accounting for 9 percent of exports), partly offset by the positive contribution of the EU countries (36 percent of exports) and the US (28 percent of exports).[31] The drop in exports to Russia and the slowing of the growth rate of exports to Brazil did not have a significant effect because of their small share of manufacturing

[31] For the diversion of high-tech exports from the countries of East Asia to Europe and the US, see Chapter 6.

exports. The countries of Europe (accounting for 70 percent), and chief among them Russia, were largely responsible for the fall in food exports. Textile exports rose, mainly due to the growth in exports to the US, which partly offset the decline in exports to the EU countries. The most positive contribution in the machinery and electric equipment and the chemicals industries came from the EU countries and the US, while the countries of East Asia made a negative contribution to the machinery and electric equipment industries as the rest of Europe did to chemicals.

3. Agriculture[32]

Agricultural product expanded by 4 percent in 1998, similar to its long-term rate since 1990.

Agricultural product rose by 3.7 percent in 1998, compared with a decline of about 1 percent in 1997. While this growth rate is notable in view of the recession, it does not deviate significantly from the industry's long-term growth trend, as since 1990 the annual growth rate of its product has averaged 4 percent. The recession has had relatively little effect on agricultural growth considering the annual fluctuations in product, output, prices, and income (part of which cannot be controlled by farmers) that characterize the industry. Supply-side changes—including shifts in the effect of the weather—usually outweigh those on the demand side, as the elasticity of domestic demand for food is relatively low.

There was a turnaround in 1998, and the income of self-employed farmers soared; this was the combined result of a modest rise in output, decline in purchased inputs, and marked improvement in the industry's 'terms of trade.'

In this context, 1998 marks a turnaround, the permanence of which is unclear: farm income, both total and the return on own labor and capital, rose by an exceptional 12 and 26 percent respectively. These rates were achieved through the combination of a moderate rise in output, reduction in purchased inputs, and marked improvement in the output/input price ratio, also reflecting the relative price of agricultural product (Figure 2.11). This improvement stemmed principally from the fall in the price of fodder, the local-currency depreciation, and the slight real rise in the price of agricultural product in the domestic market.

As stated, both output and product increased in 1998, by 1.2 and 3.7 percent respectively, while labor input and capital declined at similar rates—by less than half a percent—so that total factor productivity rose, i.e., unit factor productivity, weighted by capital and labor, went up by 4.1 percent, compared with an annual average of 4.5 percent since 1990. Note that the increase in TFP in agriculture in the long run is due primarily to accumulated agricultural capital stock and R&D, facilitating technological progress in the industry. Agriculture's share of business-sector product at current prices increased slightly in 1998, to stand at 3.1 percent.

Total factor productivity in agriculture rose by 4 percent, its share of business-sector product amounting to 3 percent in 1998.

In 1998, too, the rise in total real farm income was accompanied by the real expansion of total wage payments in agriculture—due to the greater number of employees—and by a rise in their wages, largely due to the hike in the minimum wage, which appears to be implemented more widely in the industry with regard to foreign workers. On the other hand, the long-term trend of self-employed farmers leaving the industry persisted.

[32] The discussion of developments in agriculture in 1998 is based on preliminary data; figures for 1995–97 have been updated.

Table 2.11
Indicators of Agricultural Production, 1991–98[a]

(annual rates of change, percent)

	Average							
	1991–93	1994–96	1993	1994	1995	1996	1997	1998
Output								
Total output[b]	1.5	5.9	2.6	2.7	9.7	5.3	–1.0	1.2
Inputs[c]	0.9	3.0	3.8	3.5	5.2	0.3	–1.2	–0.9
Gross product	2.3	9.1	1.3	1.8	14.6	11.3	–0.8	3.7
Total farm real income	–4.3	0.8	–11.8	11.5	–5.2	–3.2	–4.7	11.8
Real income from capital & own labor	–6.5	–8.9	–25.0	15.0	–16.2	–15.1	–15.9	25.9
Factor inputs								
Labor	1.0	2.5	11.4	4.8	5.5	–2.6	0.1	–0.4
Gross capital stock	–3.1	–1.4	–2.8	–1.4	–2.6	–0.1	0.1	–0.3
Capital/labor ratio	–4.0	–3.8	–12.8	–5.9	–7.6	2.5	0.0	0.2
Productivity								
Product/labor ratio	1.3	6.4	–9.1	–2.8	8.7	14.2	–0.9	4.2
Product/input ratio	3.0	8.1	–4.0	–0.4	12.2	13.0	–0.9	4.1
Total exports	0.4	15.4	3.5	12.0	16.9	17.6	8.5	6.8
Citrus	–15.9	8.3	–11.3	–1.4	36.4	–5.5	3.5	–13.6
Other	6.3	19.9	9.3	16.8	20.3	22.7	9.8	12.3
Prices								
Output	7.4	6.1	5.6	9.3	0.8	8.6	5.6	6.1
Purchased imports	10.2	10.3	9.4	4.3	8.3	19.0	4.7	0.2
'Terms of trade'	–2.5	–3.8	–3.4	4.8	–6.9	–8.8	0.8	5.9

[a] For footnotes, see Table 2.A.26.
[b] Including intermediate product.
[c] Purchased and intermediate product.
SOURCE: Based on Central Bureau of Statistics data.

In 1990–97 the real cumulative income of self-employed farmers contracted, but due to its marked rise in 1998 it rose by an annual average of 3 percent in 1990–98.

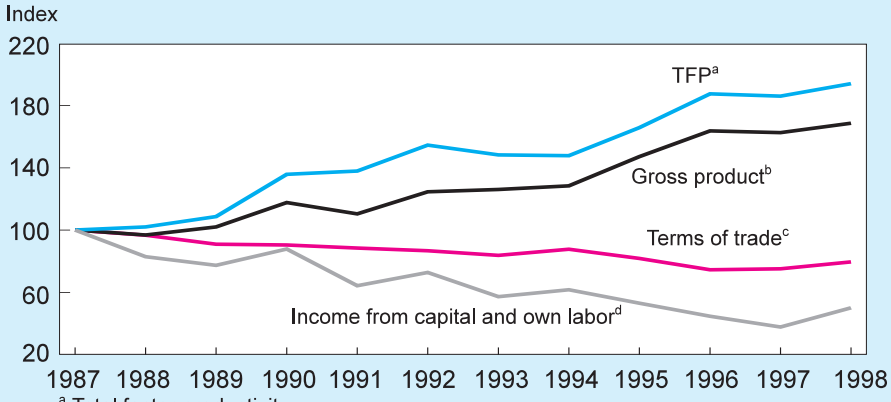
This caused the real income from own labor and capital of self-employed farmers to soar by 36 percent, compared with a decline of approximately 11 percent in 1997. Note, however, that the cumulative income of a self-employed farmer in the period between 1990 and 1997 contracted in real terms by 7 percent, and only because it grew in 1998 was its real cumulative rise 26 percent in the period since 1990 (an annual average increase of 3 percent).

Throughout this period agricultural output rose by about one quarter, produce increased by 37 percent, capital stock declined by 13 percent, the number of employees fell by 11 percent, and total labor input rose by a similar amount because of the larger proportion of foreign workers in the industry. The marked increase in TFP in agriculture in this period, and the almost 50 percent contraction in the number of self-employed farmers, enabled the average cumulative income from agriculture of self-employed farmers to rise, despite the cumulative 12 percent deterioration in the industry's 'terms of trade'[33] in those years.

In 1990–98 the cumulative average increase in real farm income was made possible by the rise in productivity and fall in the number of farmers, despite the deterioration in the industry's 'terms of trade.'

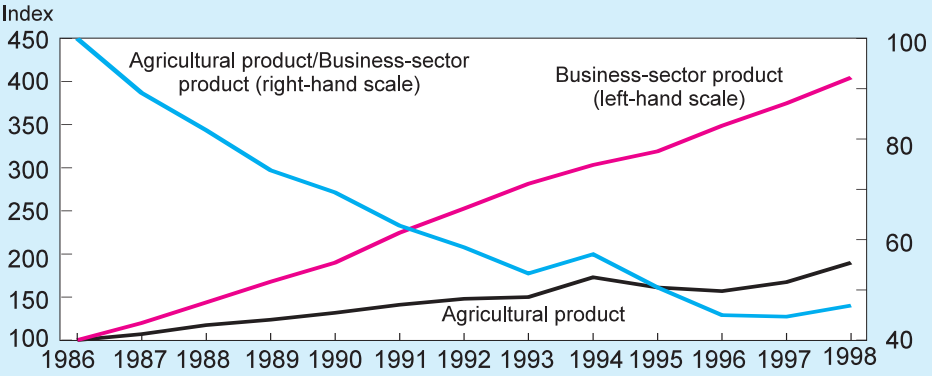
[33] The relative change in its indices of input and output prices.

Figure 2.11
Agriculture: Selected Indicators, 1987-98



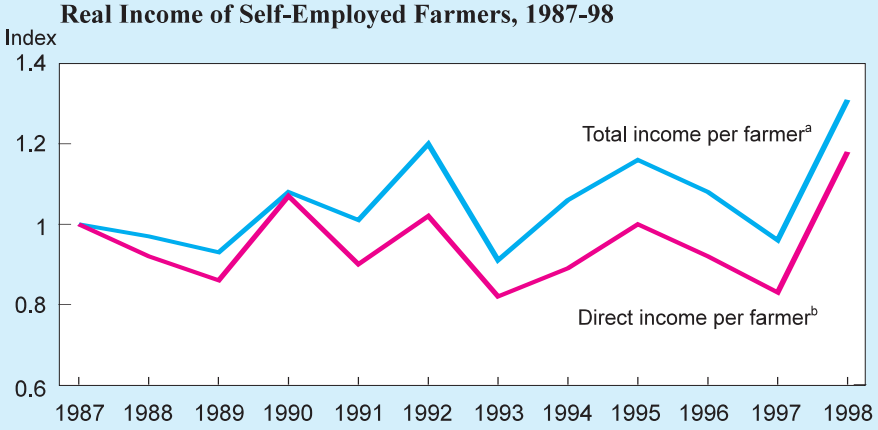
[a] Total factor productivity.
[b] Gross agricultural product, at constant prices.
[c] Output/input price ratio.
[d] Excluding compensation and subsidies, deflated by the CPI.

Indices of Agriculture and Business-Sector Product Prices,[a] 1986-98



[a] At factor cost.

Real Income of Self-Employed Farmers, 1987-98



[a] Including compensation and subsidies.
[b] Excluding compensation and subsidies.

SOURCE: Based on Central Bureau of Statistics data.

The moderate rise in the industry's total output in 1998 stemmed from the 2.5 percent increase in field crop output, similar to the rate of population growth, and slight dip in livestock output. Due to changes in the structure and function of agriculture in recent years, the creation of surplus stocks of agricultural produce ceased to constitute a major problem, modifying the contribution of changes in the prices of agricultural produce to the CPI. However, the exceptionally high temperatures in July-August 1998 harmed the ripening and marketing processes of several field crops, causing prices of domestically-marketed produce to fluctuate more widely than the customary seasonal variations.

Agricultural produce accounted for a slight decline in the CPI in 1998.

As an annual average, consumer prices of fruit and vegetables fell in real terms, while producer prices of vegetables rose in real terms in the domestic market and those of fruit fell, in line with the price changes of 1997. In 1998 agricultural produce (including livestock) contributed an annual average of 0.1 percentage points to the decline in the CPI, after accounting for 0.2 percentage points of the decline in 1997 (Figure 2.12).

Water consumption rose by 6 percent in 1998, *inter alia* for climatic reasons.

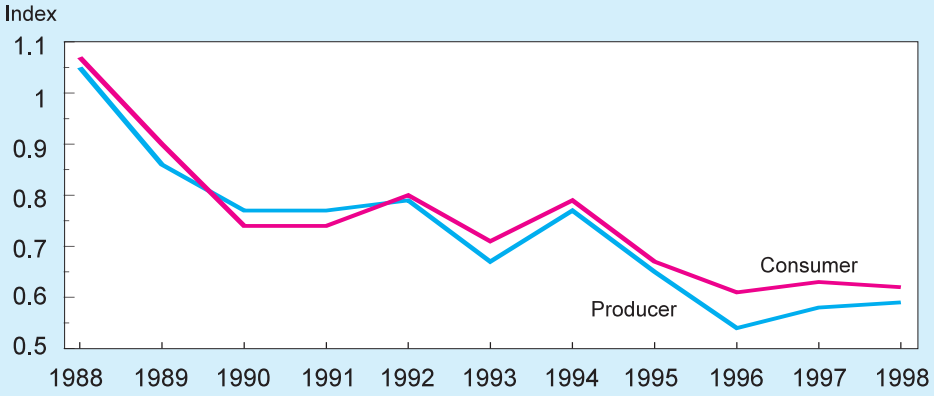
The exceptional heat-wave of the summer of 1998 and the dearth of precipitation in the autumn and winter caused over-consumption of water and deviation from the quotas. Total water consumption rose by 6 percent after remaining relatively stable in the preceding two years. The real annual average price of water for agriculture was stable in 1998, after a real 9 percent increase in 1997, and the subsidy on the price of water fell this year. Thus, the problem of the shortage of pure water for agriculture has been exacerbated in the short run, and should accelerate the search for an appropriate long-run solution. This requires formulating an efficient policy and allocating water among the various farming categories—some of which exceed their quotas while others under-utilize them—in view of the ban on trading in these quotas.

Production for export shrank by 1 percent in volume terms, while producer prices of agricultural exports in field crops rose by a real 6 percent, after plummeting in the preceding two years.

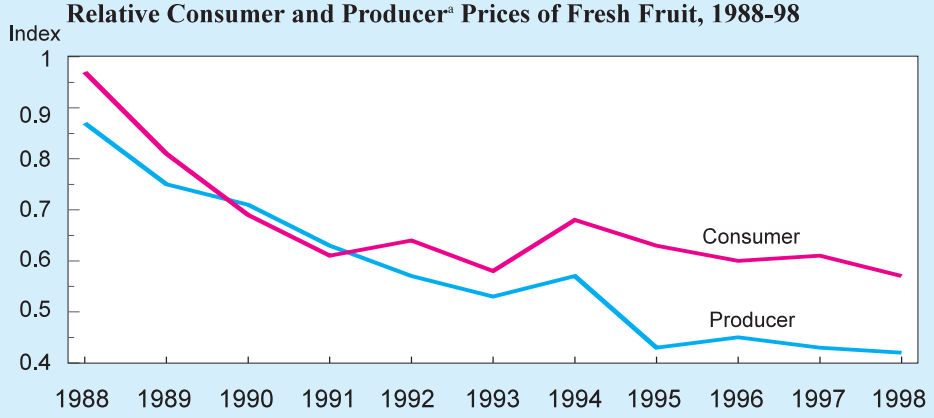
In volume terms, production for export[34] contracted by 1 percent in 1998, after declining in 1997 and expanding substantially in 1994–96. The increase in exports of vegetables (by 20 percent) in 1998 is particularly notable, and is due to investment, technological improvements, and the more extensive use of foreign workers in this branch. There was also a marked decline in exports of avocados because of the biennial bearing of these trees, for which no agritechnical solution has yet been found. In 1998 farmers benefited from the rise in the (derived) relative price obtained for exports. The increase in producer prices of agricultural exports of field crops was about 6 percent in real terms, after two years in which they fell by 9–10 percent. The main cause of the turnaround in 1998 was the real depreciation, especially in the fourth quarter. Bearing in mind the currency basket relevant for agricultural exports, as well as inflation in Israel and its target markets, this depreciation has been estimated at about 4 percent, after several years of real appreciation. Note that over a third of the income from field crops is from exports, and as the growth rate of the mean population stabilizes an increase in exports is essential for the expansion of the industry without creating surplus production which will depress farmers' incomes (see appendix tables to this chapter).

[34] In contrast with exports according to the balance of payments data (see Table 2.11 and additional data in Chapter 6). According to foreign trade data, direct agricultural exports f.o.b. amounted to $ 808 million in 1998—similar to the figure for the last two years.

Figure 2.12
Relative Consumer and Producer[a] Prices of Fresh Vegetables, 1988-98



Relative Consumer and Producer[a] Prices of Fresh Fruit, 1988-98



[a] Deflated by CPI; consumer prices on domestic market; index: 1 = 1987.
SOURCE: Central Bureau of Statistics.

The extent of purchased inputs in agriculture fell in 1998 despite the rise in output. The relative price of aggregate inputs declined, due mainly to the lower price of fodder.

As in 1997, the extent of purchased inputs in agriculture shrank in 1998, but whereas output contracted in 1997, it rose in 1998, thereby ensuring the accelerated growth of the industry's product. The price of aggregate inputs fell in real terms this year by 4.9 percent, deflated by the CPI (and by 5.6 percent deflated by agricultural product prices). The salient contribution was to the continued decline in fodder prices—some 36 percent of all input expenditure in the branch—which fell by 11.4 percent, reflecting the persistent drop in the price of grain fodder in international markets. In addition, fodder purchases (for livestock and poultry) declined by about 4 percent in volume terms.

The intensity of the improvement in the industry's 'terms of trade' in 1998, and in particular the decline in expenditure on fodder, is especially conspicuous when presented in terms of agricultural product: the total improvement in the 'terms of trade' amounts to 12 percent of product, half of it due to the decline in expenditure on fodder. Thus, the improvement in the industry's 'terms of trade' had a significant effect on increasing farm income.