

## Chapter 2

# Output and Demand

GDP, which declined in the first quarter of 1999, began to rise steeply in the second, apparently indicating the economy's emergence from the recession. As an annual average, however, GDP grew by only 2.2 percent, alongside a decline in per capita GDP for the second consecutive year. As there was a demand shift during the year, and it is not yet possible to assess to what extent it will persist, it was met by a marked increase in the average number of hours worked per employee together with the continued rise in the (average annual) unemployment rate. The revival of demand during 1999 was led by private consumption and exports, which were affected by the positive shift in tourism and the recovery of world trade.

After two years of stagnation, there was a notable rise in domestic demand in 1999, expressed in increased nonresidential and inventory investment, largely due to nonrecurring factors. The increase in demand was directed primarily to imports, which soared in 1999, alongside the expansion of the current deficit of the balance of payments.

On the demand side, total factor productivity and the rate of return on capital declined in 1999, the latter due to the effect of higher unit labor cost. Other factors influencing profitability in recent years include the high tax rate and the rise in the real interest rate.

Real appreciation, which has persisted for many years and was checked in 1998, became real depreciation in 1999 with a rise in the export/GDP price ratio. This development indicates *inter alia* a response with a lag to a process which had begun in mid-1996, namely, a marked slowing in the rate of expansion of domestic demand. Most of the nominal depreciation occurred in October 1998, and following fluctuations in both directions there was some real depreciation in 1999. Towards the end of the year and at the beginning of 2000 a trend of nominal appreciation could be discerned.

In recent years the growth rate of potential output—one of the estimates of an economy's sustainable growth rate—has declined. Part of the fall is explained by the drop in total factor productivity (TFP, obtained after adjusting for the

seasonal factors, which served to reduce it during the recession). In order to support the ongoing recovery of TFP and private-sector consumption, economic policy should maintain the positive developments in the area of inflation and the balance of payments. This ought to be done by adopting a strategy of long-term fiscal consolidation that includes reducing the share of current expenditure in GDP, thereby helping to ease the tax burden, enhance infrastructure investment—especially in mass transportation projects—and deepen structural reforms, including the reform of taxation.

## 1. MAIN DEVELOPMENTS

GDP fell sharply in the first quarter of 1999, then began to climb steeply in the second quarter, possibly indicating emergence from the recession.

As an annual average, GDP grew by only 2.2 percent, and per capita GDP even fell, alongside an increase in the unemployment rate.

Fiscal discipline was maintained in 1999 for the third consecutive year, even though there was some deviation from the deficit target. Monetary restraint also persisted, the object being to attain the government's inflation target.

After GDP declined steeply in the first quarter of 1999, there was a turnaround in economic activity and it began to climb at a rate that could presage emergence from the recession.<sup>1</sup> In spite of the positive developments, which increased the rate of GDP growth during the year (Table 2.1), as an annual average it rose by only 2.2 percent, and per capita GDP even declined for the second year in succession<sup>2</sup> (Table 2.2). As it is still too early to assess the extent to which the increase in demand that was evident in 1999 will persist, GDP growth was fuelled by a significant rise in the number of hours worked per employee post as well as by some increase in labor productivity, while the unemployment rate continued to expand until the third quarter, rising on average from 8.6 to 8.9 percent of the labor force. Much of the increase in demand was met by imports, alongside a rise in the balance-of-payments deficit.

The positive developments during the year were led by a trend shift in several exogenous factors as well as by the maturing of processes that had begun to emerge in the past. The slowing of world trade that had led to the contraction of goods exports in the second half of 1998 and the first quarter of 1999 reversed, and goods exports rallied from the second quarter of 1999. On the political level, there were expectations of progress in the peace process during the year, and this supported the turnaround in incoming tourism as well as the continuation of direct foreign investment. As regards economic policy, fiscal discipline (despite a slight deviation from the deficit target) was maintained for the third successive year as was monetary restraint, intended to attain the government's inflation target; these developments were expressed in commendable achievements in the area of inflation. The message conveyed by fiscal and monetary discipline is that there is no intention of increasing direct intervention by

<sup>1</sup> There is no consensus regarding the precise definition of a recession. In the US it is defined as a persistent decline in GDP growth over several quarters, the average recession lasting three successive quarters. In Israel, due to the frequent population shifts stemming from influxes of immigrants, a recession is defined as a year in which per capita GDP growth is negative.

<sup>2</sup> The significant updating of GDP in 1997 by the Central Bureau of Statistics (CBS) indicates that per capita GDP rose in that year and did not fall, as was reported in previous issues of this publication.

**Table 2.1**  
**Developments During the Year, 1998–99**

	(quarterly rates of change, in annual terms)										
	During year <sup>a</sup>			1998				1999			
	1998	1999	1999 <sup>b</sup>	I	II	III	IV	I	II	III	IV
<b>Sources and uses</b>											
GDP	2.4	4.2	6.3	3.8	2.9	2.4	0.8	-3.7	8.0	5.1	5.8
Business-sector product	2.3	4.6	7.7	5.9	2.4	1.8	0.0	-6.5	9.5	7.1	6.5
Private consumption	2.3	5.0	4.9	3.6	14.0	-3.7	-2.4	6.0	1.7	12.1	1.3
<i>of which</i> Excl. durables	2.5	4.4	4.3	4.6	6.0	1.9	0.9	4.6	2.4	6.4	4.1
Public consumption	3.0	6.4	10.7	5.5	-1.8	-0.4	-1.1	-2.0	20.5	7.0	5.2
Fixed investment	-4.3	1.2	-4.9	-1.4	-1.9	-17.4	6.5	8.0	6.1	-1.2	-18.0
<i>of which</i> Nonresidential	-2.1	6.1	-2.7	-2.8	0.9	-14.4	6.0	18.9	12.1	6.1	-22.6
Residential	-9.1	-10.8	-11.9	-6.5	-10.9	-15.7	0.9	-12.4	-11.9	-14.3	-9.6
Exports <sup>c</sup>	6.6	17.6	19.5	6.2	40.5	-14.2	-1.1	7.4	17.1	24.1	17.3
<i>of which</i> Excl. diamonds	8.4	15.8	19.5	11.4	42.0	-13.7	-0.2	2.6	16.1	26.5	16.3
Goods exports	2.7	17.7	18.5	9.9	15.7	-4.7	-8.6	5.6	19.9	19.6	15.9
Uses	1.9	10.0	9.9	2.9	4.9	0.8	-0.1	5.4	11.4	11.1	7.3
Imports	1.0	24.4	21.6	-0.8	11.9	-4.6	0.6	18.5	30.5	21.1	13.7
<i>of which</i> Excl. direct defense imports <sup>d</sup>	3.5	17.2	18.7	4.9	16.9	-3.1	-3.5	12.7	12.7	19.3	24.5
Domestic uses	7.0	7.0	4.6	1.3	-4.1	9.3	-3.0	9.4	6.2	5.5	2.0
Unemployment rate <sup>e</sup>				8.6	9.2	8.2	8.2	8.7	8.9	9.1	8.9
Labor productivity <sup>f,g</sup>	2.0	-3.8	0.4	7.4	8.2	6.8	-0.8	-12.7	3.5	-0.3	-1.8
Average hours worked <sup>g,h</sup>	0.3	4.0	3.2	-4.3	-1.2	-7.2	1.4	0.4	4.7	4.9	0.1
Manufacturing production index	2.6	4.6	8.0	11.1	1.5	-1.5	2.3	-7.5	3.4	19.3	-0.5
State-of-economy index	3.0	2.7	4.2	5.9	9.3	-1.7	-0.3	-1.9	2.8	9.1	3.3

<sup>a</sup> Rate of growth of original data vis-à-vis preceding year.

<sup>b</sup> As of second quarter; rate of growth of data, reflecting level in fourth quarter vis-à-vis first quarter.

<sup>c</sup> Excluding receipts from factors of production abroad and interest receipts from abroad of public sector.

<sup>d</sup> Also excluding ships, planes, and diamonds.

<sup>e</sup> These data refer to levels rather than to rates of change.

<sup>f</sup> Labor productivity: business-sector product/labor input.

<sup>g</sup> Quarterly data based on National Accounts data and Labour Force Survey of Central Bureau of Statistics.

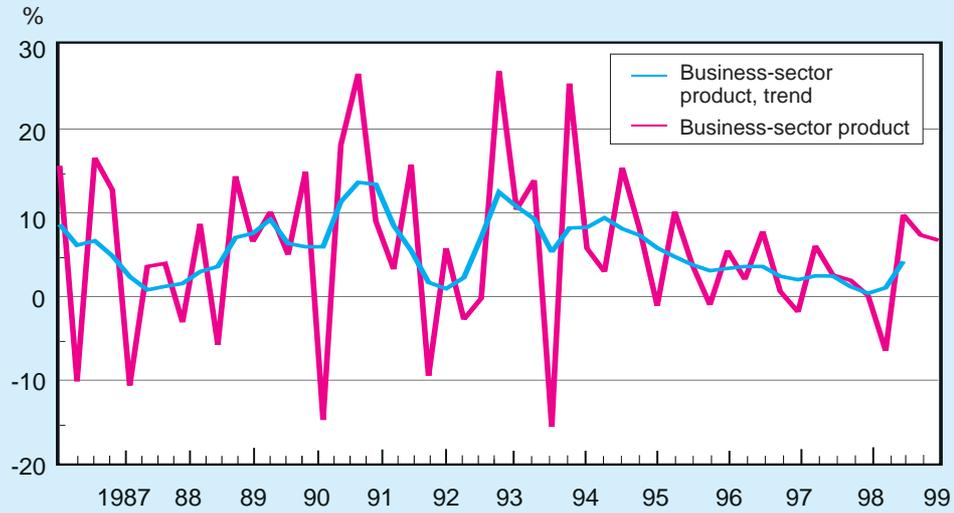
<sup>h</sup> Average hours worked per Israeli employee in business section.

SOURCE: Based on Central Bureau of Statistics data.

the government in order to foster demand. Initiated demand embodies short-term dangers for both the balance of payments and the financial sphere, requiring a heavier tax burden in the future. In the absence of a significant exogenous force that will bring the economy out of recession, a strategy of this kind could reinforce endogenous factors that help to end the recession. These include factors exerting pressure for real depreciation, which enhances the profitability of the business sector, as well as expectations of a long-term rise in business-sector activity, as expressed by an increase in permanent disposable income, and hence an increase in consumption. From a long-term perspective it can be seen that while the efforts of the last three years signal a change in the direction of policy as compared with the period before 1996, in view of the composition of policy it is doubtful whether the steps that have been taken to date will suffice to attain sustainable growth rates. The main test of the strategy of maintaining

Real depreciation, which enhances exports, and expectations of continued business-sector expansion, which enhances consumption, will help to end the recession.

**Figure 2.1**  
**Business-Sector Product,<sup>a</sup> 1987–99**



<sup>a</sup> Quarterly data, annual percentages.

SOURCE: Based on Central Bureau of Statistics data.

In view of the composition of policy, it is doubtful whether the measures taken to date will suffice to attain sustainable growth rates.

Over and beyond the effect of demand—whose slow expansion caused the long recession of recent years, and which has been leading the emergence from the recession since the second quarter of 1999—longer-term supply-side effects have also been operating.

fiscal and monetary discipline will be in the coming years, when convergence is expected towards the potential output growth rate—currently estimated at 4 percent. It will then become clear whether policymakers have managed to establish the long-term fiscal consolidation and convergence of inflation to the level prevailing in the developed countries. Attempts at fiscal consolidation made elsewhere indicate that in order to increase the chances of sustainable growth, current public expenditure as a share of GDP must be reduced, making it possible to decrease the public deficit and support the convergence of the interest rate to the level accepted in developed countries while attaining the inflation target.

Beyond the effect of demand—whose low rate of expansion caused the protracted recession of recent years, and which has led the emergence from it since the second quarter of 1999—a more long-term effect, connected with the supply side, has been in evidence. An analysis of this effect is necessary for assessing the economy's ability to attain a growth rate that is sustainable in the long run. The slowdown in the growth rate of potential output in recent years, part of which is explained by the fall in TFP (even adjusting for the seasonal factors that reduced it during the recession), illustrates the crucial role played by economic policy in attaining sustainable growth; it is particularly important to return to a process of reducing statutory tax rates—after the retreat in this sphere as of 1997—and to progress from the planning to the implementation stage of public transportation projects.

In order to analyze the extent to which the revival of demand since the second quarter is enduring, it is important to ascertain which part of it derives from nonrecurring factors. Much of the rise in investment is in fact of a one-off nature, such as preparations

for coping with Y2K-associated problems, imports for diamond stocks, imports of equipment for the Intel plant, and investment in planes. Adjusting for the rise explained by these factors, investment even fell. Hence, the response of investment—especially in construction, which plummeted in 1999—to the emergence from the recession has not yet become evident. The rate of increase of exports can be expected to be affected by the extent to which world trade recovers, as well as by the turnaround in tourism, in the context of the positive developments in the political arena and the millennium.

One of the most notable developments of 1999 was the marked rise in imports, especially in a year of real depreciation. Much of the increase derived from incremental investment, explained to a great extent by nonrecurring factors; some of it stemmed from the rise in imports of raw materials in view of assessments regarding the emergence from the recession and forecasts of future price-hikes. Automobile imports were prominent in the imported component of investment, rising by almost 20 percent.

One of the most notable developments of 1999 was the steep increase in imports. Some of it stemmed from incremental investment, largely explained by non-recurring factors, while some was due to the rise in imports of raw materials.

**Table 2.2**  
**Indicators of Economic Activity, 1986–99**

	(rate of change, percent)							
	1986–89	1990–95	1996	1997	1998	1999	1999	
							Jan–Jun <sup>a</sup>	Jul–Dec <sup>a</sup>
GDP	1.9	2.4	2.0	0.4	–0.2	–0.2	–2.1	3.5
Per capita GDP	3.6	6.0	4.6	2.9	2.2	2.2	0.3	6.0
Business-sector product	4.5	7.2	5.3	2.9	2.2	1.8	–1.1	7.6
Index of industrial output	0.9	7.3	5.4	1.7	2.9	1.3	–2.4	10.0
Unemployment rate <sup>b,c</sup>	7.1	9.3	6.7	7.7	8.6	8.9	8.8	9.0

<sup>a</sup> Annual rates of change, seasonally adjusted, compared with preceding six months.

<sup>b</sup> The 1995–99 data may differ from those in Table 4.1 due to a change in definitions in 1998 involving backward chaining; discrepancies are due to use of a different coefficient.

<sup>c</sup> These figures refer to levels rather than rates of change.

SOURCE: Based on Central Bureau of Statistics data.

The real appreciation that has persisted for a long time and was expressed in the decline in export prices relative to the GDP deflator, ended in 1998, and in 1999 it became real depreciation of 1.4 percent (annual average). In this sphere, too, monetary policy plays a crucial role, and must refrain from reinforcing the factors exerting pressure for protracted real appreciation that derive from the increased productivity of the advanced industries and long-term capital flows.

## 2. AGGREGATE DEMAND AND SUPPLY

### The demand side

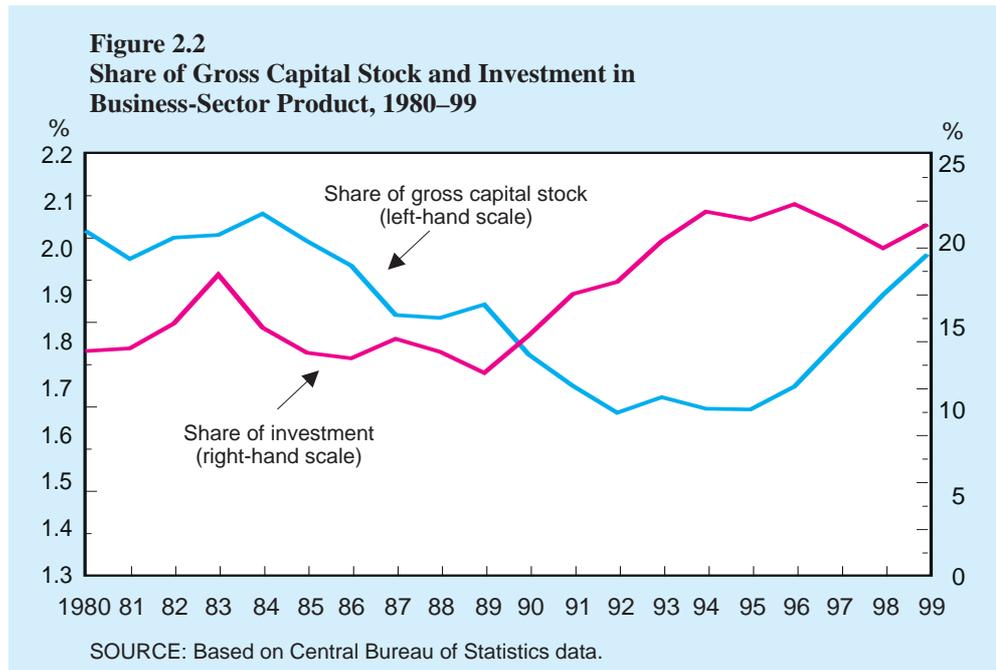
Domestic uses grew by about 5 percent in 1999, after two years in which they rose by approximately one percent a year (Table 2.3). The faster rate of expansion is explained mainly by the significant increase in nonresidential investment; some of this was directed to GDP but most of it went to imports, which soared in 1999. A large part of the

Domestic uses rose by 5 percent in 1999, after two years in which they rose at an annual rate of one percent. The acceleration is explained mainly by the significant increase in non-residential investment, most of which was diverted to imports.

Although the rate of expansion of private consumption was slightly lower in 1999 than in 1998, during the year it accelerated and reached 5 percent.

investment growth expresses nonrecurring factors—activities associated with fears of Y2K-associated problems, investment in diamond stocks, purchases of planes, and investment in the Intel plant. Adjusting for the rise explained by these factors, gross domestic investment declined by about one percent, and imports (excluding defense imports) rose by some 6 percent (instead of 14 percent). Nonetheless, the investment in Intel reflects a broader trend that has characterized Israel’s economy in the last few years, i.e., the expansion of advanced industries which embody the potential for a sustained rise in investment.

While private consumption grew at a slightly slower rate in 1999 than in 1998, during the year it rose by 5 percent; this increase served partly to offset the decline of the previous quarters, but it expresses a clear change over the period of the recession. The growth rate of public consumption was faster than in the two preceding years, and resembled that of 1990–95, during part of which there was fiscal expansion. In view of the possibility that growth will rally in the next few years, it is important to monitor the development of civilian expenditure as a share of GDP, and especially to examine whether it declines again once growth revives. This decline is an important signal of the government’s adherence to a genuine process of fiscal consolidation,<sup>3</sup> i.e., persistent reduction of the public deficit as a share of GDP.



<sup>3</sup>Empirical studies have shown that the main component of a strategy of fiscal consolidation in order to increase business-sector investment is a decline in public consumption expenditure and transfer payments as a share of GDP. In Israel no such decline, which should occur when high growth rates occur, has yet been apparent. This development is not self-evident, however, especially since until the middle of the decade western governments tended to spend all the revenues obtained in a boom (Z. Hercowitz and M. Strawczynski (1999), *Cyclical Bias in Government Spending: Evidence from the OECD*, Tel Aviv University, Department of Economics, Working Paper no. 6-99).

**Table 2.3**  
**Sources and Uses, 1986–99**

	(volume rates of change, percent)					
	1986–89	1990–95	1996	1997	1998	1999
GDP	3.6	6.0	4.6	2.9	2.2	2.2
Imports	4.8	11.0	8.2	1.9	1.7	14.4
<i>of which</i> Excl. oil, diamonds, ships and planes	4.1	11.7	9.8	1.2	4.4	9.6
Total sources	4.0	7.6	5.7	2.6	2.1	5.8
Exports	4.5	7.4	6.6	7.7	6.3	9.7
<i>of which</i> Excl. diamonds	3.4	8.3	7.0	9.8	9.9	8.7
Goods	5.8	7.8	9.4	9.4	5.1	8.2
Goods excl. diamonds	4.5	9.3	10.8	13.1	10.2	6.4
Gross domestic investment	3.2	15.4	6.2	–6.8	–8.0	9.8
<i>of which</i> Nonresidential	2.1	15.6	8.5	–3.3	–2.7	6.5
Private consumption	7.1	7.5	5.4	4.2	3.6	3.3
Public consumption <sup>a</sup>	0.8	2.9	3.8	1.7	1.5	3.4
Domestic uses	4.8	8.0	5.2	1.1	0.8	4.5
Adjusted domestic uses <sup>b</sup>	–	–	5.3	1.2	1.1	3.1
Total uses	4.0	7.6	5.7	2.6	2.1	5.8

<sup>a</sup> Excluding defense imports.

<sup>b</sup> Domestic uses excluding diamond stocks, and investment in ships and planes.

SOURCE: Based on Central Bureau of Statistics data.

Although, as stated, much of the increased nonresidential investment in 1999 is explained by nonrecurring factors, the growth rate in the next few years will be affected by the extent of capital accumulation in the advanced industries—the result of the structural change that the economy is undergoing, and which is characterized mainly by the surge in exports of these industries (see section on manufacturing). Among the long-term factors affecting investment are imports of manufacturing machinery and investment in R&D and software. On the other hand, construction investment is affected to a great extent by the economy’s cyclical developments. This category of investment plummeted in 1999, but there are signs that the decline has been checked (see section on construction).

Against the backdrop of the government’s economic policy, the analysis of fiscal policy focuses on two channels: the direct effect of fiscal policy on domestic demand, and the persistence of fiscal consolidation, expressing policymakers’ determination to attempt to generate endogenous forces that will serve to bring the economy out of the recession and attain sustainable growth rates led by the business sector. This involves reducing public-sector demand, which exerts pressure for real depreciation, and refraining from burdening the business sector, in order to create expectations of an increase in permanent income.<sup>4</sup>

<sup>4</sup>The subject of the pass-through is controversial; according to one approach, fiscal consolidation signals an expected decline in tax and interest rates, alongside a rise in demand. The other approach stresses the supply side: fiscal consolidation that includes a cut in expenditure and is supported by the unions improves the functioning of the labor market, and hence the supply side. See A. Alesina and S. Ardagna (1998), “Fiscal Adjustments: Why They Can Be Expansionary,” *Economic Policy*, October, 489–545.

Fiscal policy operates both through its direct effect on domestic demand and through economic agents’ perception of fiscal consolidation.

As regards the first channel, there are indications that fiscal policy helped to expand demand in 1999, but not to an extent that expresses a departure from the policy rules adopted in the two preceding years. Public consumption rose by 3.4 percent, compared with 1.5 percent in 1998; the domestic demand of the public sector (including construction) grew by 0.8 percent, on the other hand, compared with 2.1 percent in 1998. The fiscal impulse,<sup>5</sup> which expresses the change in the public-sector domestic deficit adjusted for the effect of the business cycle, declined in 1999; the public-sector domestic deficit tends to rise in a depression and fall in a boom, because of cyclical factors that do not express an initiated change in fiscal policy. The decline in the fiscal impulse as a share of GDP—by 2.4 percent in 1997, 1.0 percent in 1998, and 0.7 percent in 1999—signals a loosening of restraint over previous years but, as stated, expresses the continuation of the policy of the last three years.

Concerning the second channel, as of 1997 the measures the government has introduced signal to the business sector that its long-term strategy is one of fiscal consolidation. These measures have included the reduction of the budget deficit by one percent of GDP and the determining of annual inflation targets that gradually bring the economy into line with the inflation rates prevailing in developed economies. The question is whether these measures contributed to the turnaround in economic activity in 1999. It seems that in the wake of the aforementioned improvement in factors affecting real economic developments, the maintenance of fiscal discipline in the last three years provided a suitable backdrop for the emergence of endogenous factors that promote real depreciation and the creation of expectations that permanent disposable income would rise. However, the composition of the policy indicates that the way it was implemented does not guarantee the attainment of sustainable growth rates. Moreover, a calculation based on econometric criteria and using past data shows that the direct effect of the policy factors on GDP was to reduce it.<sup>6</sup> These results indicate that the strategy of continued growth led by the business sector has not yet become entrenched.

<sup>5</sup> There is no consensus regarding the correct way to calculate this index, so that it is customary to use indices based on a widely-used method that enables international comparisons to be made. Here we apply the method developed at the IMF—using the domestic deficit adjusted for income from property (mainly the Bank of Israel's profit); an application of this method to Israel and specification of the assumptions on which it is based is presented in M. Dahan (1994), "A Fiscal Impulse Measure for Israel," *Bank of Israel Economic Review*, 68, 23–38.

<sup>6</sup> For a detailed account of fiscal policy measures, see Chapter 5. These measures included reducing the public-sector domestic deficit (which increases GDP) in 1997 while raising taxes (which reduces GDP) and hiking the real interest rate as of 1995 (thereby reducing investment) to achieve disinflation. A calculation based on the coefficients presented in Y. Lavi and M. Strawczynski (1998), *The Effect of Policy Factors and Immigration on the Supply and Composition of Business-Sector Product—Factors of Production, and Productivity, Israel: 1960–95*, Research Department, Bank of Israel, Discussion Paper no. 98.07 (Hebrew) shows that the direct effect of policy as a whole served to reduce GDP. Note that adherence to fiscal and monetary discipline may have been perceived by the public as a permanent change in the regime, possibly as a result of the process of globalization, and that this indirect effect, which increases consumption and GDP, is not captured by the regression coefficients.

One of the tests of policy is to examine whether the government reduces current expenditure as a share of GDP at a time when economic activity is expanding rapidly, as by doing so it helps to buttress the fiscal consolidation, and thereby to ease the burden of monetary restraint while attaining the inflation target.

As an annual average, private consumption rose at a lower rate in 1999 than in 1998. While this seems to indicate that it is not yet possible to discern the economic recovery, this conclusion turns out to be erroneous when developments during the year are analyzed (Table 2.1). After declining in the last two quarters of 1998, there was a rapid recovery at the beginning of 1999 and private consumption rose by 5 percent until the end of the year. This growth rate may simply have offset the decline in 1998, but since it encompassed most of its main components even when durables are excluded (4.5 percent), and persisted for four consecutive quarters, it appears to presage a trend shift. A consistent development of this kind occurred in the past only at times of rapid economic growth, and expresses a change in behavior patterns vis-à-vis the years of the recession. Possible explanations of the rise in private consumption during the year are the reassessment of permanent income in view of the persistence of policy in the last three years, which concerns primarily that section of the public that is not affected by liquidity constraints (Box 2.1), and the marked increase in the return on shares. The persistence of this growth rate will have a crucial effect on the extent to which Israel recovers from the recession.

Possible explanations of the increase in private consumption during the year are the updating of permanent income and marked increase in the return on shares.

### Box 2.1

#### Contribution of Private Consumption to Israel's Emergence from Recession

In contrast to previous business cycles, when emergence from recession was triggered by a significant exogenous event, the end of the present recession depends to a great extent on endogenous economic factors, i.e., pressure for real depreciation, which will stimulate exports, and expectations of a rise in permanent income, which will stimulate private consumption. Because of the significant share of private consumption in total uses its recovery is critical for the economy's emergence from the recession.

It is generally accepted that private consumption is exposed to random fluctuations,<sup>1</sup> and that a change in it depends on a shift in permanent income, which is by definition unforecastable. Thus, a rise in private consumption during the year may signal a move to a new plateau due to a change in public expectations regarding disposable permanent income. Notwithstanding, Lavi's<sup>2</sup> study provides only partial empirical support for this theory as regards Israel. He found that changes in current disposal income have a significant effect on private consumption, because of the existence of a category of consumers that accounts for about half of total private consumption and is affected by liquidity constraints, and consequently cannot smooth consumption. These consumers act in

accordance with the expected change in disposable wage income, which can be estimated on the basis of available data. The study also showed that the real interest rate and return on shares also cause changes in consumption, even though the elasticity of consumption to these variables is low.<sup>3</sup>

The conclusion derived from these findings is that about half the change in private consumption will be determined by the change in current income, and about half by the change in permanent income, which is unforecastable. Because of Israel's high unemployment rate, wage agreements that have been signed, and tax changes that have been announced, disposable wage income is expected to rise at the same rate in the year 2000 as it did in 1999. On the other hand, as stated, it is impossible to forecast the extent of the change in permanent income. To illustrate this quantitatively, we attempted to estimate the changes in permanent income on the basis of a three-year average (forward) of the growth of potential output. Assuming that in the next few years this ranges between 4 and 6 percent, and that disposable wage income also rises by 3.5 percent in the year 2000, the range within which consumption will change in 2000 will be between 3.7 and 4.8 percent, while the national budget forecast fits the lower limit. Note that the relevant variable for the forecast is expected disposable permanent income. For the purposes of the calculation, it was assumed that GDP growth will facilitate the reduction of current public expenditure as a share of GDP—making it possible to avoid a future increase in taxation.

<sup>1</sup> R. Hall (1978), "Stochastic Implications of the Life-Cycle Permanent Income Hypothesis: Theory and Evidence," *Journal of Political Economy*, 96, 971–987.

<sup>2</sup> Y. Lavi (1999), "Do Changes in Current Income Help to Explain Changes in Consumption in Israel? An Empirical Test of the Permanent Income Hypothesis with Rational Expectations," *Bank of Israel Economic Review* 71, 1–27.

<sup>3</sup> Note that in 1999 the return on shares soared (see Chapter 7). As a result, despite the low elasticity, this may be significant in explaining the rise in private consumption during the year.

Exports (excluding diamonds) expanded at a slower rate in 1999 than in 1998 (Table 2.3). The slowdown in goods exports (excluding diamonds) over previous years in 1999 is connected with the slower growth of world trade, which declined from 10 percent in 1997 to 4 percent in the last two years (Table 2.5). During the recession the advanced industries grew rapidly (see section on manufacturing), and continued to do so in 1999, with the exception of a few that appear to have been affected by the slowdown in world trade (see Chapter 6). World trade rallied during the year (so that it is expected to rise in 2000), and this had a positive effect on Israel's exports (Table 2.1). Israel's terms of trade also continued to improve (see Chapter 6). An examination of export destinations shows that the recovery is intensifying, especially in the east Asian markets, and that during the year this served to increase exports. Another factor that acted to expand exports in 1999 was real depreciation (see Section 3).

The slowdown in goods exports (excluding diamonds) in 1999 compared with previous years is connected with the slower expansion of world trade—from 10 percent in 1997 to about 4 percent in the last two years.

Tourism exports were particularly prominent in 1999. After a protracted slump, due to political and security uncertainty in recent years, there was a sharp turnaround in tourism; this stemmed from expectations of continued recovery in the year 2000 due to the end of the millennium and the improved political situation. Given the considerable potential of tourism, this development is highly significant both for Israel's economic recovery and for strengthening growth rates in the medium run. The improvement in tourism in 1999 may also have been affected by real depreciation, which increases tourists' buying power.

There was a turnaround in tourism exports in 1999, after the persistent slump of the last few years, due to political and security uncertainty.

### The supply side

Starting in the second quarter, business-sector product rose more rapidly than GDP in 1999 (Table 2.1)—a development that is in line with Israel's growth strategy, which is based on business-sector growth. It is difficult to assess the economy's new growth rate as the rate during the year also expresses factors that offset the steep rise in GDP in the first quarter. There is greater probability, however, that GDP is growing at a rate that is close to its potential, which is currently estimated at 4 percent.

As of the second quarter of 1999, the growth rate of business-sector product outstripped that of GDP.

**Table 2.4**  
**Supply of Business-Sector Product, 1986–99**

	(rate of change, percent)					
	1986–89	1990–95	1996	1997	1998	1999
Gross capital stock	2.7	5.0	8.4	8.8	7.7	6.5
Labor input	2.0	6.6	6.2	1.4	-0.6	3.3
Civilian labor force <i>plus</i> foreign workers <sup>a</sup>	2.2	5.4	6.7	3.0	3.2	3.1
Total factor productivity <sup>b</sup>	2.2	1.1	-1.5	-0.9	0.1	-2.4
Total factor productivity in 1999 <sup>c</sup>						0.7
Rate of return on net capital ( <i>percent</i> )	5.2	12.1	8.0	6.1	5.7	4.1
Roads capital stock per factor input unit <sup>d</sup>	0.9	-0.1	0.5	3.9	4.4	2.6
Share of tax on non-wage income in GNP ( <i>percent</i> ) <sup>e</sup>	31.8	26.5	27.6	30.9	30.5	29.4
Real interest on overdrafts ( <i>percent</i> ) <sup>f</sup>	24.5	10.4	11.8	11.0	10.7	10.6
Real yield on 10-year bonds ( <i>percent</i> ) <sup>g</sup>	4.1	3.0	4.6	4.1	4.9	5.2
Average real interest ( <i>percent</i> ) <sup>h,f</sup>	–	7.1	6.0	7.0	8.6	4.4
Unit labor cost	3.1	-1.1	2.4	1.9	0.1	2.1

<sup>a</sup> The labor force *plus* the labor inputs of Palestinian and foreign workers, in accordance with their share in the business sector.

<sup>b</sup> Productivity level is calculated as the residual by deducting the rise in inputs (labor and capital) from business-sector product weighted by the production function (see note d).

<sup>c</sup> Productivity level in fourth quarter against productivity level in first quarter.

<sup>d</sup> A factor input unit is weighted at 68 percent labor and 32 percent capital.

<sup>e</sup> The share of taxes in non-wage income out of non-wage income in business sector (including executives' pay).

<sup>f</sup> Interest deflated by price of business-sector product.

<sup>g</sup> Data as of 1987.

<sup>h</sup> Weighted cost of unindexed credit, CPI-indexed credit, and foreign-currency-indexed credit; the data exist from 1993 (see Table 7.3).

SOURCE: Based on Central Bureau of Statistics data.

Despite rapid economic growth during the year, the unemployment rate rose until the third quarter. In the absence of a significant exogenous force acting to bring the economy out of the recession, the extent to which the recovery of demand will persist remains uncertain. Consequently, GDP growth will be based on a steep rise in the average number of hours worked per employee, as well as on an increase in labor productivity (during the year, Table 2.1). Greater labor productivity may reflect improved utilization of labor, which depends greatly on demand.

According to annual averages of supply variables, TFP and the return on capital declined during the recession.

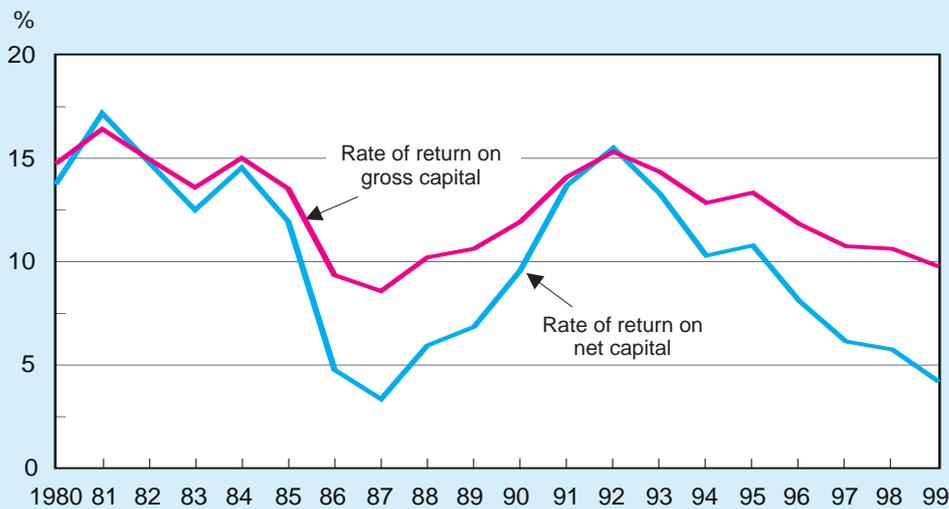
An examination of annual averages of supply variables (Table 2.4) shows that most of the negative trends that were evident during the recession persisted in 1999. Total factor productivity (TFP) declined, as did the return on capital (Figure 2.3). The decline in productivity also appears to express the cyclical effect of the recession, however, and alongside the recovery during the year there was a slight rise in TFP (Table 2.4). Nonetheless, even after adjusting for the cyclical factors which reduced TFP during the recession there was a decline in TFP, due to several factors that depress both it and the return on capital. One of the variables that served to reduce the return on capital in 1999 was the unit cost of labor, which rose in spite of the high unemployment rate. This might be due to the rigidity of the nominal wage; as wage agreements cover long periods, the new nominal environment that has emerged in recent years may not yet have been internalized in them. The decline in the inflation environment appears to have given rise to the steep increase in unit labor cost in 1997, despite the higher unemployment rate that year. Nevertheless, in the last two years there have been indications that the rise in unit labor cost is moderating vis-à-vis the two previous years.<sup>7</sup> An explanation that is consistent with this development is the rise in unemployment in the last two years. However, the higher cost of labor in 1999 provides evidence of the fact that despite the length of the recession, explained largely by the lack of demand, there is no significant endogenous mechanism for adjusting profitability by means of changes in labor cost. This is in contrast with 1990–92, the period of the influx of immigrants, when unit labor cost fell in response to the incremental labor supply.

The revival of the trend of nominal appreciation at the end of 1999 and the beginning of 2000 raises the question whether the average real depreciation evident during the year was merely temporary.

Interest rates affect the supply side through two channels: the first is associated with the capital inflow arising from nominal interest-rate differentials (adjusted for the risk premium); in 1996 and 1997 this was one of the factors behind the cumulative appreciation beyond the 1990–95 average. This factor ceased to have an effect at the end of 1998 (see Chapter 2 of the *Annual Report* for that year), and there was real depreciation, expressed in the 1999 average (Table 2.5). Notwithstanding, the resurgence of nominal appreciation at the end of 1999 and the beginning of 2000 raises the question whether the real depreciation evident in the annual average is merely transient in view of the effect of other factors—autonomous capital inflows and increased productivity in the advanced industries. Appreciation adversely affects mainly traditional industries, whose productivity has not risen as it has in the advanced industries (see section on manufacturing). The second channel through which real interest rates affect supply is

<sup>7</sup> An analysis of developments in manufacturing showed a significant drop in labor costs in 1999, primarily due to the rise in product prices (see section on manufacturing).

**Figure 2.3**  
**Rates of Return on Gross and Net Capital in Business Sector, 1980–99**



SOURCE: Based on Central Bureau of Statistics data.

by making loans to firms more expensive. Note, in this connection, the weighted cost of credit in the various segments—unindexed, CPI-indexed, and foreign-currency-indexed (Table 2.4). In recent years this has been characterized by considerable variance, due mainly to sharp swings in foreign-currency credit—the result of exchange-rate shifts. Nonetheless, on average the weighted cost of credit rose from about 6 percent in 1993–94 to some 7 percent in 1995–99.

Note with regard to the (average) decline in TFP that this is partly connected with the lower utilization of labor (number of hours worked) and capital, which is not measured directly but is expressed as the residual of TFP. That part of productivity which rose during the year is highly pro-cyclical, and is expected to reverse once the recession ends. This does not apply to the structural element of productivity, which is affected by ongoing factors such as the high tax rate and lack of progress in infrastructure investment (Box 2.2).

### **Box 2.2** **Sustainable Growth**

The growth rate of potential output is one of the indicators for assessing sustainable growth. The following analysis decomposes potential output growth based on the production function of business-sector product.<sup>1</sup>

Most of the slowdown in the growth of potential output in 1997–99 stemmed from the adjustment of the rise in the labor force to the patterns that prevailed before the influx of immigrants. The fall in the growth rate of potential output

moderated as a result of the positive contribution of capital stock, due to the lagged effect of mass immigration on the level of investment.

**Contribution to Change in Potential Output,  
1990–96 vis-à-vis 1997–99**

	1990–96	1997–99	Difference	Contribution <sup>a</sup>
Average growth in:				(percent)
Labor input	5.8	2.3	–3.5	–2.4
Gross capital stock	5.1	7.1	2	0.6
Total factor productivity	1.2	0.3	–0.9	–0.9
Potential output	6.8	4.1	–2.7	

<sup>a</sup> Contribution to rise in potential output.

Note, however, the negative contribution of TFP, calculated from the trend, which dipped by about one percent. Part of this negative contribution can be ascribed to the technical difficulty of adjusting for the pro-cyclical nature of this variable, which incorporates the utilization of factors of production. In fact, in 1960–72, a period of rapid growth, TFP rose by 10 percent, whereas in 1973–84 (‘the lost decade’) growth stopped, and there was a slowing in product. In 1985–91 TFP rose significantly, and as of 1992—a period that includes the difficulties associated with the absorption of immigrants and the recent recession—it remained static. Nonetheless, several studies have shown that many other factors had a marked effect on productivity.<sup>2</sup> Note, in particular the policy variables; first, as a result of the considerable backlog as regards infrastructure investment (see section on transport), progress in implementing mass transportation projects assumes special importance; and second, the reform of the tax system while reducing tax rates on human capital, which is the engine of Israel’s growth strategy, is also crucial for increasing productivity. All this must be achieved while implementing long-term fiscal consolidation.

Beyond their effect on the supply side, these policy measures will serve to increase private-sector demand, helping to fulfill Israel’s growth potential.

<sup>1</sup> Y. Muallam and Y. Menashe (2000), *Measuring the Deviation from Potential Output and its Effect on the Import Surplus*, Bank of Israel, Research Department, internal memorandum (Hebrew).

<sup>2</sup> Various factors may have had a positive effect on the productivity trend, as explained in various articles in the special December 1999 issue on ‘Productivity in Israel’ of *Bank of Israel Economic Review* 7. These include “Labor Productivity in Israel’s Manufacturing Industry, 1990–94” (S. Lach), “Productivity Factors in Israel’s Manufacturing Industry” (A. Bregman and A. Marom), and “The Impact of Macroeconomic Factors on Productivity in Israel, 1960–96” (Z. Hercowitz, Y. Lavi and R. Melnick).

## 3. DEMAND, SUPPLY, AND THE REAL EXCHANGE RATE

The real exchange rate, measured from the ratio between the rise in export prices and that in the GDP deflator, rose by 1.4 percent in 1999 (Table 2.5)—after rising slightly in 1998 and declining for many years previously because of long-term factors such as increased productivity in the advanced industries and capital inflow.<sup>8</sup> The ratio of prices of imports to the GDP deflator rose by 0.8 percent in 1999, after declining by 2 percent in 1998 and by an annual average of 5.6 percent in 1996 and 1997. This development expresses a lagged response to forces that exerted pressure for real depreciation (Tables 2.5 and 2.A.7), i.e., the slowdown in domestic uses in the past, and the slowing of construction activity in recent years (which began to moderate in 1999). When the effect of some of the factors that had hampered depreciation during the recession (primarily the rise in the nominal wage, as explained in the section on labor cost, and the temporary convergence of interest rates in Israel and abroad, as described in last year's edition of this publication) began to abate, there was significant nominal depreciation in October 1998. This became appreciation at the beginning of 1999, changed direction again during the year, and there was appreciation again towards the end.

There was real depreciation in 1999. Relative to import prices, export prices rose by 1.4 percent.

**Table 2.5**  
**The Real Exchange Rate and the Traded Sector, 1986–99**

	(rate of change, percent)					
	1986–89	1990–95	1996	1997	1998	1999
Exchange rate (export terms) <sup>a</sup>	-5.1	-3.4	-3.8	-2.7	0.1	1.4
Exchange rate (import terms) <sup>b</sup>	-6.8	-3.3	-6.4	-4.8	-2.3	0.8
Nominal exchange rate against currency basket	16.9	9.6	3.5	4.3	9.6	8.3
Traded product of business sector <sup>c</sup>	2.2	5.8	4.8	1.7	3.0	1.7
Traded demand of business sector <sup>c</sup>	4.1	8.8	7.1	2.6	3.8	9.1
Terms of trade <sup>d</sup>	1.8	-0.1	2.8	2.3	2.5	0.6
World trade, volume growth	6.4	6.1	6.8	9.9	3.6	3.7

<sup>a</sup> Ratio of export prices (excluding diamonds) to business-sector product prices (including housing services).

<sup>b</sup> Ratio of import prices (excluding diamonds) to business-sector product prices (including housing services).

<sup>c</sup> See Table 2.A.7.

<sup>d</sup> Ratio of export prices (excluding diamonds) to import prices (excluding diamonds).

SOURCE: Based on Central Bureau of Statistics data.

A somewhat surprising development in 1999 is the steep increase in imports just when there was real depreciation relative to previous years (Table 2.5). It seems, however, that causation worked in the opposite direction in 1999 than in the past. Autonomous factors which led to the expansion of imports supported the real depreciation, most notable among them being, first, the economy's emergence from the

<sup>8</sup> It is not clear if the appreciation of the 1990s reflects only these factors, as this was concurrent with the initial stages of the integration of immigrants; this stage included the effect of immigrants' demand, which contributed to further real appreciation.

recession and expectations of future price-increases, which caused the business sector to step up its imports of raw materials; second, as a result of nonrecurring factors (equipment for Intel, purchase of planes and diamond stocks) imports rose in 1999.

In addition to the long-term factors that give rise to the nominal appreciation which, as stated, was again in evidence towards the end of the year, fiscal and monetary policy also have an effect. Placing fiscal consolidation on a firm basis is critical; it exerts pressure for real depreciation and enables fiscal restraint to be eased—thereby preventing the exacerbation of real appreciation which, as stated, is also affected by long-term factors, such as capital inflow and the increased productivity of the tradables industries.

#### 4. SAVING, INVESTMENT, AND THE CURRENT ACCOUNT

The decline in the national saving rate in 1999 was led by the reduction of public saving, reflecting the fall in income due to the Bank of Israel's profit. Private saving continued to rise, however.

The national saving rate as a share of total income fell by about one percent in 1999 and stood at 16.4 percent (Table 2.A.16). As in 1998, private saving continued to rise in 1999, although public saving plummeted due to the decline in income from property (most of it from the Bank of Israel's profit, about one percent of GDP). A possible explanation of the rise in private saving in 1999 may lie in the cautious approach of individuals, who enlarge their savings as a precaution against a tax hike in the future.<sup>9</sup> The rise in private saving is also bolstered by the declining share of wage income in total disposable income in the last two years (Table 2.A.8).

Gross domestic investment accounted for 18.8 percent of total income in 1999, compared with 18.1 percent in 1998. This rise expresses a 9.8 percent increase in gross investment, after a decline of 8 percent in 1998 and of 6.8 percent in 1997.

The rate of investment in business-sector product remained high (20.7 percent), and gross business-sector capital stock at the beginning of 1999 rose by 6.5 percent over the beginning of 1998.<sup>10</sup> While this rate is lower than it was in 1998 (7.7 percent), it is considerably higher than the rate of increase of business-sector product (1.8 percent).

Investment in fixed assets rose moderately in 1999 (1.5 percent). An analysis of the components of investment indicates that for the second year in succession they did not develop in a uniform way. Residential investment fell by 10 percent, continuing the 6.7 percent decline in 1998; this reflects the drop in demand for housing both because of the effect of the influx of immigrants at the beginning of the 1990s tapered off and because of the erosion of mortgages for eligible persons and rise in the interest on nondirected mortgages. As against this, nonresidential investment (adjusted for ships and planes) rose by 1.6 percent, expressing a steep decline in investment in structures (15.8 percent), on the one hand, and a sharp rise in investment in equipment (13 percent), vehicles (4.5 percent), and intangibles (software, R&D—14.3 percent), on the other,

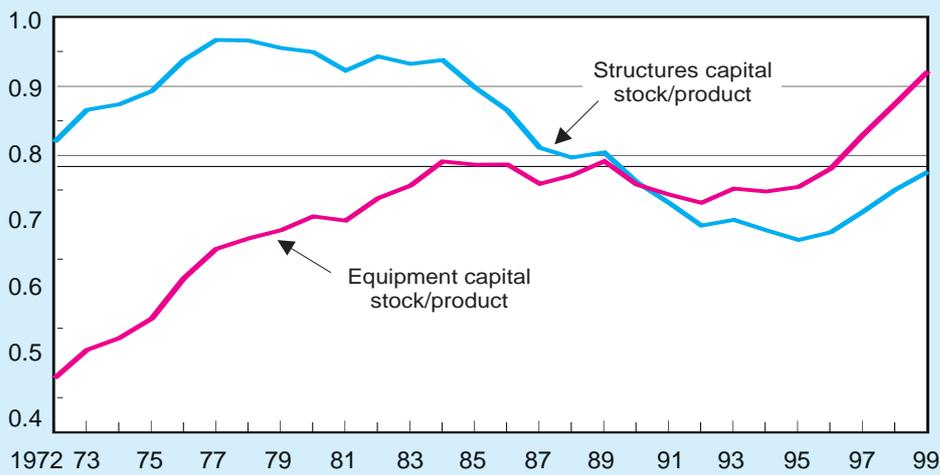
<sup>9</sup> Note that this analysis of saving is based on average figures. The analysis of the effect of the persistence of policy presented in Box 2.1 refers to individuals' confidence that the change in it will continue. Consequently, its effect is expressed with a delay, and it was reflected only during the year; on average, it should cause private saving to decline in 2000.

<sup>10</sup> Business-sector capital stock at the beginning of 2000 rose by 6.6 percent.

continuing the trend of rapid expansion in the software industry. Most of the increased investment in equipment was in manufacturing, in electronic components (mainly the purchase of equipment for Intel), and computer services (which grew this year due to efforts to prepare for Y2K-associated problems). The decline in investment in structures paralleled the fall in residential investment. Thus, against the backdrop of unutilized factors of production in construction, the explanation of the decline appears to lie in the absence of demand. Inventory investment rose in 1999, expressed in its increased share in business-sector product (up by 2 percent of GDP over 1998). This steep increase reflects a rise in investment in start-ups<sup>11</sup> (which grew by almost one percent of GDP) and the revival of investment in the diamond industry in view of the recovery from the crisis that affected the east Asian countries in 1998. The rate of inventory investment in manufacturing (0.25 percent of GDP) remained relatively low in 1999.

The increase in the share of investment in total income, and decline in the national saving rate, were expressed in the larger deficit in the net current account.

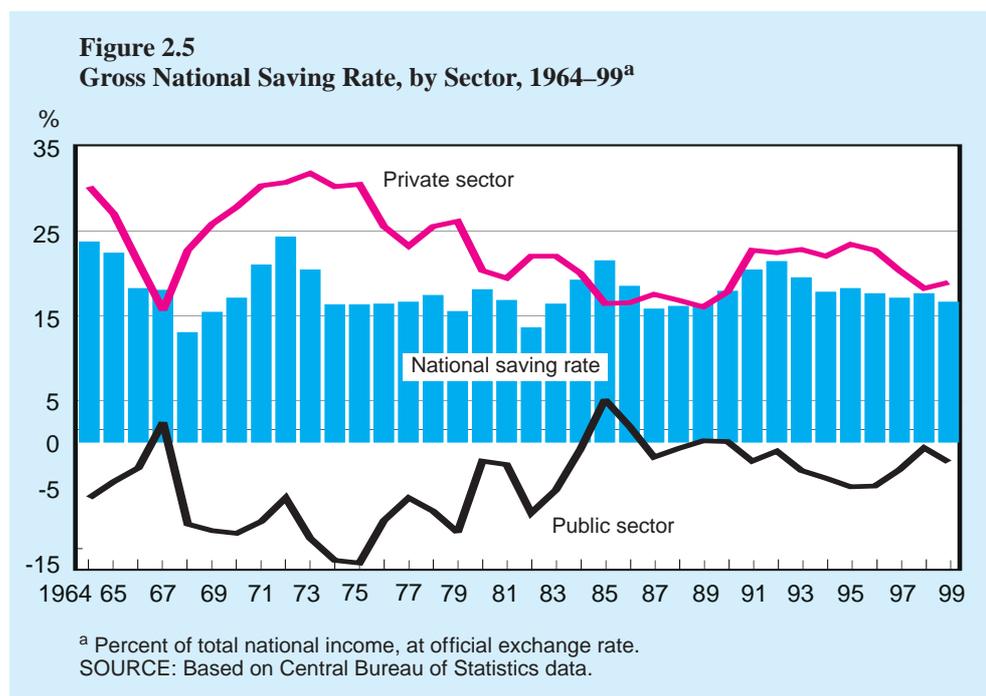
**Figure 2.4**  
**Composition of Ratio of Gross Capital Stock to Business-Sector Product, 1972–99**



SOURCE: Based on Central Bureau of Statistics data.

A closer examination of the ratio of gross capital stock to the various components of business-sector product shows that the ratio of structures capital stock came closer in 1999 to its level prior to the influx of immigrants, while the ratio of equipment and machinery capital stock was considerably higher than it had been before the immigration. Note that the rise in the ratio of equipment capital stock to business-sector product

<sup>11</sup> In 1999 all investments as recorded in start-ups by venture capital funds were defined as a rise in stocks. This calculation is a preliminary estimate of investment in these companies and does not take into account the projects' chances of success. Investment in a company that is sold to a foreign investor at a later stage will be deducted from stock with a corresponding increase in exports.



should be examined in accordance with its long-term trend. This has been rising since the early 1970s (except in the late 1980s), due to technological improvements (especially in the advanced, human-capital-intensive industries) and the continued moderation of prices of imported intermediates (Figure 2.4).

## 5. THE PRINCIPAL INDUSTRIES

### 1. Main developments<sup>12</sup>

The development of the product of the principal industries embodies the effect of the business cycle the economy is experiencing as well as longer-term trends of structural economic change—the increased share of services<sup>13</sup> and lower share of goods.<sup>14</sup> The recession discussed at length in the first part of this chapter served to reduce demand, and this had a particularly deleterious effect on goods industries, whose product declined by 2 percent in 1999, and on average has not risen in the three years of the recession,

<sup>12</sup> In this section we refer to business-sector product as measured from the principal industry side (Table 2.A.10) and not from the uses side (National Accounts figures), as is the case in the first part of this chapter. There are discrepancies between the GDP growth rates obtained using each method (see errors and omissions in the aforementioned table), and the CBS is currently preparing an integration that will combine the two measurement methods.

<sup>13</sup> Commerce and services, transport and communications, and electricity and water.

<sup>14</sup> Manufacturing, agriculture, and construction.

1997–99. The services also suffered as a result of the recession, and did not grow at the rate evident in the boom years, 1990–96 (an annual rate of 9 percent); nonetheless, their rate of expansion in the three years of the recession is an impressive annual 6 percent, since demand for their product has remained relatively high, both as final uses and as intermediates. Prices in the services industries lagged behind the increased cost of business-sector product, however, due to the expansion of supply. The development of the goods industries was not uniform in the years of recession in general and in 1999 in particular; construction and agricultural product declined, while manufacturing product continued to rise moderately.

Although we do not have indicators of the development of all the principal industries during the year, according to indicators of the activity of the two main business-sector industries—manufacturing (index of manufacturing product) and commerce and services (based on VAT payments at constant prices)—there was a significant acceleration in their activity from the second quarter of 1999, a picture that is in line with the development of business-sector product during the year according to National Accounts figures.

Particularly prominent in 1999 was the 11 percent drop in construction product. The share of this industry soared in 1994–96 due to the demand for housing from the influx of immigrants; once this demand was exhausted it was expected that construction product would decline. No new expansionary demand-side effects emerged in 1999; per capita income, mortgage interest, and population growth did not help the industry to emerge from the recession. On the contrary, investment in the infrastructure of structures—most of it public—plunged by 15 percent in 1999 (total infrastructure investment fell by 12 percent).

Another goods industry that contracted in 1999 was agriculture, demand for which was adversely affected by the decline in per capita income, and supply of which was impaired by the drought in the winter of 1998–99. These factors combine with the long-term trend of relatively slow expansion in agriculture that is characteristic of western countries. This trend is particularly appropriate for Israel, where there is an acute shortage of water.

Manufacturing continued to grow by 2 percent in 1999, a rate that resembles the average of the last few years, compared with 6–8 percent in the boom years, 1990–96. The rise, which occurred despite the continued decline in manufacturing sales to the domestic market, stemmed from the human-capital-intensive industries, whose exports increased.

In the services industries, business services, whose share has been growing, rose rapidly. Services to high-tech businesses—computer services, software, manpower, etc.—expanded particularly rapidly, as did banking services, especially due to the surge in stock-market activity. Another services industry that increased rapidly is transport and communications, together with a significant drop in its relative prices, a marked supply-side effect. This can be seen in communications in the form of technological improvements and enhanced competition.

## 2. Manufacturing

### a. Main developments

Manufacturing product, which accounts for approximately a quarter of business-sector product, grew by about one percent in 1999. In 1997–99 (the years of the slowdown) product rose by an annual average of 2 percent, after a far more rapid 7 percent annual average increase in 1990–96 (the years of the boom). In the last two years (1997 and 1998) the slowdown was due primarily to the stagnation of sales to the domestic market. In 1999 this was supplemented by a slowdown in the expansion of exports due to the world crisis, which peaked at the end of 1998.

In 1997–99 manufacturing product grew by an annual average of 2 percent, after a far more rapid annual average 7 percent rise in 1990–96.

**Table 2.6**  
Manufacturing Industry, Main Indicators, 1990–99

	(rates of change, percent)			
	1990–96	1997	1998	1999
Manufacturing product	7.0	1.7	2.9	1.2
Manufacturing exports (volume)	9.0	13.9	11.7	7.1
Domestic sales (volume)	8.6	0.5	-1.7	-0.7
Output/input prices	0.4	1.1	0.5	2.3
Export/output prices	-1.7	-1.4	1.4	0.8

SOURCE: Based on Central Bureau of Statistics data.

Manufacturing exports grew by 7 percent in 1999, more slowly than in the two preceding years and than in the boom years, when exports rose rapidly despite the surge in domestic demand and decline in export prices relative to output prices. The slower growth of domestic demand in 1997 and 1998 served to speed up the rate at which manufacturing exports expanded. The steep rise of exports in these years encompassed mainly the advanced industries, which are skilled-labor- and R&D-intensive. These industries, which account for a relatively large share of exports, continued to expand rapidly in spite of the slowdown in domestic demand.

Manufacturing exports rose by 7 percent in 1999, a lower rate than in the preceding two years and also than in the boom years.

**Table 2.7**  
Average Rates of Change in  
Production Indices and  
Terms of Trade,<sup>a</sup> 1998–99

	1998		1999	
	I	II	I	II
Production	2.6	0.1	-1.2	4.9
Exports	5.2	2.0	-1.3	14.9
Labor input	-0.3	-2.3	0.2	1.1
Terms of trade	3.0	3.3	2.3	-4.6

<sup>a</sup> First six months vis-à-vis second six months.  
SOURCE: Based on Central Bureau of Statistics data.

The effect of the crisis that hit east Asia, Brazil, and Russia was apparent in 1999, influencing manufacturing in two opposing ways. On the one hand, it slowed the growth rate of world trade in general and that of demand for manufacturing exports in particular, while on the other it brought down prices of raw materials and improved Israel's terms of trade. The conflicting effects of the crisis were expressed in both a decline in manufacturing exports and the improvement of indices of profitability.

The rise in prices of manufacturing exports exceeded by far that in prices of imported intermediates (by 4.6 percent). Because of the large share of exports in manufacturing output and of imported raw materials in manufacturing inputs (30 and 43 percent respectively), the improvement in the terms of trade led to a more rapid increase in output prices than in input prices, so that profitability rose. The increase in the price of output relative to that of input outstrips by far the average for the 1990s. There was an even greater improvement in prices of exports relative to those of inputs as a result of the depreciation of the NIS vis-à-vis the currency basket in 1999.

An examination of the development of the terms of trade and manufacturing exports during the year shows that in 1998 and the first half of 1999 they improved radically. Nevertheless, the rate of export growth slowed in the second half of 1998 and even declined in the first half of 1999. This development is

**Table 2.8**  
**Indices of Profitability in Manufacturing, 1990–99**

	(rates of change, percent)			
	1990–96	1997	1998	1999
Unit labor cost <sup>a</sup>	-0.1	1.6	0.9	-4.6
Cost per hour worked <sup>a</sup>	3.5	5.3	5.2	-3.1
Rate of return on gross capital	14.4	11.1	10.3	11.7

<sup>a</sup> Real cost, GDP deflator.

SOURCE: Based on Central Bureau of Statistics data.

consistent with the course of the global crisis, which peaked at the end of 1998. As a result of the crisis the rate of expansion of world trade slowed from 9.9 percent in 1997 to 3.6 percent in 1998 and 1999, world trade rallied during 1999, and this is expressed in the forecast for 2000 (6.2 percent) published in October 1999. The end of the crisis led to a rise in prices of imported raw materials, but also to the recovery of exports and manufacturing product in the second half of 1999. From developments regarding the terms of trade and exports it can be concluded that despite the improvement in the terms of trade and indices of profitability, in the final event the global crisis was detrimental for manufacturing.

In the first two years of the crisis the cost per hour worked rose much faster than in the boom years. The fact that wages rose more rapidly during a slump can be attributed to the surprising fall in prices: since wage agreements are determined on a nominal basis, an unexpected slowing of the inflation rate will bring in its wake a higher real wage than planned. In 1999, following the improvement in the terms of trade, the rise in the price of manufacturing product outstripped by far that of the CPI (12.6 percent and 5.2 percent respectively). As a result, despite the rise in the real wage (2.1 percent relative to prices of consumer goods), real labor costs fell substantially. This contributed to the reduced share of wage payments in manufacturing product and the greater share of capital payments in it, in contrast with the continuously increasing share of wage payments in 1994–98 (from 66 to 73.4 percent). The smaller proportion of wage payments in manufacturing product and the increased share of capital payments in it caused the return on capital to rise, after having declined steadily since 1994. Note that the improvement in indices of profitability in 1999 stemmed from the improvement in

From the development of the terms of trade and exports in 1999 it can be concluded that, despite the improvement in the former and in indices of profitability, in the final event the global crisis was detrimental to manufacturing.

The more rapid rise of wages in a recession can be attributed to the surprising fall in prices.

the terms of trade; these deteriorated in the second half of the year, when indices of profitability fell again.

Total factor productivity is estimated from the accepted coefficients for capital and labor in the production function. The combined contribution of capital and labor to the rise in product in 1999 is estimated at 2 percent. Actual product growth was less than this, so that TFP fell. During the recession TFP stagnated in manufacturing, after rising at an annual average rate of over 2 percent during the boom. The stagnation in TFP was expressed in the relatively low utilization of factors of production in general, and of capital in particular, because of the slower growth rate of demand at that time.

The stagnation of TFP expresses relatively low utilization of factor inputs in general, and capital in particular, because of the slower growth rate of demand during the recession.

**Table 2.9**  
**Manufacturing Industry Indicators, 1990–99**

	(rate of change, percent)			
	1990–96	1997	1998	1999
Labor input (hours)	3.5	-1.8	-1.4	-0.3
Number of employed persons	2.9	-1.0	-0.9	-1.5
Gross (real) capital stock	6.4	9.4	7.3	6.5
Gross (real) investment	15.1	-8.3	0.9	12.5
Product per hour worked	3.5	3.6	4.3	1.5
Total productivity	2.5	-0.2	1.4	-0.7

SOURCE: Based on Central Bureau of Statistics data.

In the first two years of the slump the rise in labor costs outstripped that in labor productivity, forcing firms to reduce the number of hours worked.

Product growth was accompanied by a decline in labor input (in hours), so that labor productivity increased in 1999. The ratio between the price of labor input and labor productivity (unit labor cost) remained at long-term equilibrium; the increase in the cost of labor input beyond that of labor productivity will force firms to dismiss employees. The reduction of employment will increase the capital/labor ratio, and this will enhance labor productivity. In the boom years the cost per hour worked and labor productivity (product per hour worked) rose at identical rates, but in the first two years of the recession the rise in the cost of labor exceeded that in labor productivity, obliging firms to reduce the number of hours worked. There was a turnaround in 1999, as a result of the improvement in the terms of trade, and the cost per hour worked fell significantly while labor productivity rose. Despite the marked improvement in unit labor cost, labor input continued to decline in 1999, albeit far more moderately than in 1998.

The number of employed persons contracted despite the significant drop in unit labor costs because the increase in profitability in 1999 expressed mainly a temporary improvement in the terms of trade.

Alongside the slight decline in labor input (hours), the number of employees fell appreciably in 1999.<sup>15</sup> In the two preceding years employers refrained from reducing the number of employees in manufacturing to the level required by the slowdown in activity, preferring to restrict the number of hours worked per employee. In 1999, as the slump persisted, an adjustment was made, and the number of employees in manufacturing was reduced while the number of hours worked per employee returned

<sup>15</sup> The discrepancy between the number of employees in this chapter and in the chapter on employment is due *inter alia* to differences in the by-industry classification of employees on the basis of data on individuals (labor force surveys) and on firms (surveys of manufacturing).



The advanced industries account for a far larger share of exports than the traditional ones; the latter are more sensitive to domestic demand, while the former are more sensitive to global demand.

innovative.<sup>17</sup> The parameters surveyed were investment in R&D, use of patents, know-how and modern equipment, and the share of the revenues of innovative firms in each industry's annual revenues. Industries with a higher proportion of skilled workers than their share in total manufacturing and with a higher share of innovative firms than the industry average were defined as advanced. The electric engine industry was also included in the category of advanced industries because until 1995 it could not be distinguished from the advanced electronic industries. Industries in which both the share of skilled workers and the share of innovative firms' revenues is below the average are defined as traditional. Rubber and plastics, and mining and quarrying, where the proportion of skilled workers is slightly lower than the average in manufacturing but where the share of innovative firms' revenues is above the average, were defined as mixed.

The share of the advanced industries in manufacturing product was only slightly higher in 1999 than that of the traditional industries, but their share of exports was much greater, 73 percent vis-à-vis only 18 percent. This can be clearly seen in Israel manufacturing's comparative advantage embodied in its know-how and human capital, as well as in the greater sensitivity of the traditional industries to domestic demand, while the advanced industries are more sensitive to global demand.

**Table 2.11**  
**Development of Advanced and Traditional Industries, 1990–99**

	(rate of change, percent)							
	1990–1996		1997		1998		1999	
	Advanced	Traditional	Advanced	Traditional	Advanced	Traditional	Advanced	Traditional
Product	6.7	6.6	4.1	0.4	7.8	-1.8	3.0	-1.6
Labor input	2.7	3.4	0.1	-2.7	2.1	-3.2	0.8	-1.0
Capital stock	8.7	5.1	11.6	7.7	9.0	6.4	9.1	4.7
Total factor productivity	2.2	2.5	0.5	-0.5	3.5	-1.9	-0.3	-2.5
Labor productivity	4.0	3.1	4.0	3.2	5.6	1.4	2.2	-0.6
Exports	10.4	5.9	20.8	-2.3	16.1	2.2	8.4	-0.1

SOURCE: Based on Central Bureau of Statistics data.

In the first two years of the recession the advanced industries continued to grow at a relatively rapid rate, while the product of the traditional industries contracted.

An examination of the development of product by the advanced-traditional industry classification shows that in 1990–96 these growth rates were similar in both categories. In the traditional industries product growth was based on a relatively faster rise in labor input, while the rise in capital input in them was smaller than in the advanced industries. In the years of economic slowdown the relatively rapid growth of the advanced industries persisted, while the product of the traditional industries fell. During this period capital stock in both the advanced and the traditional industries continued to soar and even accelerated. The rate of expansion of labor input was far slower in the advanced industries, while in the traditional industries it actually declined.

The moderation of domestic demand during the slump had an adverse effect primarily on the traditional industries, while the advanced industries continued to expand in

<sup>17</sup> The survey did not examine the extent of R&D activity, so that firms that invest little in R&D are still considered innovative.

1997–98, based mainly on impressive export growth. In 1999, due to the global crisis, the export growth of the advanced industries slowed appreciably, as expressed in the slower growth rate of their product and the moderation of TFP. In the traditional industries the slump persisted in 1999: labor input and TFP continued to contract for the third year in succession, and product fell for the second, with a marked decline in investment (12.2 percent).

Manufacturing industries were also classified as export and domestic industries on the basis of the share of exports in their total sales,<sup>18</sup> using the industry and crafts survey for 1994: industries whose share of exports was over 40 percent of their total sales were defined as export industries, whereas those whose exports accounted for less than 20 percent of their total sales were defined as domestic industries. The remaining industries were defined as intermediate. Export industries accounted for 47 percent of manufacturing product, and domestic industries for 28 percent. The classification shows that in the boom period the growth rate of the product of the export industries resembled that of the domestic industries, and in the slump years the growth rate of the export industries slowed while the product of the domestic industries fell. In 1999, as a result of the global crisis, the growth rate of the export industries slowed considerably, and that of the domestic industries continued to contract, albeit at a more moderate rate than in 1998.

Because of the global crisis, the rate of expansion of exports of the advanced industries slowed markedly in 1999, as is attested by the moderation of the growth rate of their product.

There was a notable slowdown in the growth rate of the export industries in 1999 because of the global crisis; however, while the product of the domestic industries continued to contract, this was at a more moderate rate than in 1998.

**Table 2.12**  
**Development of Export and Domestic Industries, 1990–99**

	(rate of change, percent)							
	1990–1996		1997		1998		1999	
	Export	Domestic	Export	Domestic	Export	Domestic	Export	Domestic
Product	7.0	6.6	4.5	-0.5	7.8	-2.5	2.4	-1.3
Exports	9.8	4.8	20.1	-1.9	13.8	4.2	8.4	0.5

SOURCE: Based on Central Bureau of Statistics data.

In the last few years industries that have been exposed to competing imports from third countries have been hard-hit. Tariffs on imports of wood products, footwear, and iron for construction have been reduced to their target rate of 8–10 percent, and the reduction of tariffs on textile imports will be completed by September 2000. The product of the wood, textile and clothing industries has remained unchanged in the last five years, while the share of imports of these products in domestic consumption has risen steadily. The product of the leather and footwear industry (which accounted for 0.7 percent of manufacturing product in 1994) has fallen by some 40 percent in the last five years, and that of the basic metals industry has fallen at a relatively moderate rate in the last two years. While the tariffs on metal and steel have been lowered in the last

In recent years the clothing, leather, and wood industries, which have been exposed to competing imports from third countries, have experienced difficulties.

<sup>18</sup> Domestic industries include all the traditional industries except textiles and clothing, jewelry and objets d’art, and metal products. The export industries include all the advanced industries except machinery and equipment, as well as mining and quarrying, jewelry and objets d’art, and miscellaneous.

decade, they have recently been replaced by a 'dumping levy,' in order to protect domestic industry and—for the moment—prevent an increase in the share of imports in total domestic uses. The process of reducing tariffs, which serves to improve the welfare of consumers, on the one hand, and harm the situation of producers, on the other, is reflected in the decline in the relative prices of the products thus exposed.

**Table 2.13**  
**Volume Rate of Change of Exports, Domestic Sales and Relative Price, Selected Industries, 1990–99**

	(annual rates of change)						
	Change in sales to domestic market		Change in imports		Share of domestic product in uses <sup>a</sup>		Relative price <sup>b</sup>
	1991–94	1996–99	1991–94	1996–99	1990	1999	1996–99
Clothing	14.3	–7.8	44.3 <sup>c</sup>	6.6 <sup>c</sup>	94	63	–2.3
Leather & products	12.8	–17.0			85	47	–3.1
Wood & products	11.8	–8.9	8.9	0.9	79	52	–2.1
Basic metals	3.8	–8.6	7.2	0.8	51	46	–4.8

<sup>a</sup> The classification of manufacturing industries differs from that of imports, so there is not a complete correlation between imports and domestic sales in each industry. There are no data for 1995, when the manufacturing sample was changed.

<sup>b</sup> Wholesale price vis-à-vis the CPI from 31.12.1996 to 31.12.1999.

<sup>c</sup> Rates of change of imports were calculated together for the clothing and leather industries.

SOURCE: Based on Central Bureau of Statistics data.

The product of the minerals and nonmetallic minerals industry has plummeted in the last two years, mainly because construction demand has moderated, but also because tariffs have been reduced on glass and ceramic products. The contraction of construction activity adversely affected the industries producing construction inputs; the production of the carpentry and metal industry, and of mining and quarrying, whose products are used in construction, declined in 1999 for the second consecutive year.

**Box 2.3**  
**Subsidies for R&D in Manufacturing, and for Investment in Development Areas**

Subsidies for R&D: The Chief Scientist, acting in the framework of the Encouragement of Research and Development in Manufacturing Law, subsidizes up to 50 percent of the R&D investment of existing firms and up to 66 percent of the investment in start-up companies. In return, the firms pay the state royalties on the project to an amount not exceeding the original subsidy (indexed to the dollar and paying the LIBOR interest rate). National expenditure on civilian R&D in Israel was 2.8 percent of GDP in 1997, compared with 1.9 percent in the OECD countries. A quarter of the R&D in the business sector is subsidized by

the government, a far greater share than in the OECD countries, where it averages 9 percent.

There are economic reasons for subsidizing R&D in manufacturing, and it is according to them that its worthwhileness should be judged:

1. Spillover effects: The know-how accumulated as a result of R&D investment spills over in part to other firms, and contributes to their development. As a result, the return on R&D investment is lower to the firm than to the economy as a whole. Where spillover effects exist, increasing a firm's R&D investment improves the allocation of resources in general. Studies have shown that there is a high return on R&D investment, but the contribution of government subsidization to increasing the investment has not been examined. Griliches and Regev<sup>1</sup> have shown that from the firm's viewpoint the return on subsidized R&D is greater than that on unsubsidized R&D, so that the government subsidy does not constitute a waste of resources. On the other hand, it can be claimed that investment in R&D would be worthwhile even without the subsidy, and that subsidization does not serve to increase it (this is doubtful if the subsidized projects are more risky, in which case the firm would not undertake them otherwise). Even if the firm's R&D investment has risen as a result of the subsidy it is still not certain that the investment has contributed to other firms. Note that

**Table 2.14**  
**Funding of R&D by Chief Scientist and Venture Capital Funds, 1988–99**

(\$ million, current prices)

	Expenditure on R&D	Grants from Chief Scientist			Venture capital funds	
		Percent of expenditure repaid	Other subsidies <sup>a</sup>	Net share of grants in product	Venture capital	Share in funding <sup>b</sup>
1988–1990	381	8.3		0.25		
1991–1993	609	12.7	51	0.30	568	41.3
1994–1996	1,010	17.3	150	0.38	940	43.5
1997–1999	1,225	29.0	264	0.38	2,033	56.1

<sup>a</sup> Subsidies provided in the framework of preliminary technological R&D and technological greenhouses.

<sup>b</sup> This includes all the expenditure of the Chief Scientist and the venture capital funds, and excludes other sources, such as IPOs and credit from banks.

SOURCE: Office of the Chief Scientist of the Ministry of Industry and Trade.

in order to obtain a grant from the Chief Scientist there is no need to demonstrate the existence of spillover effects, and that no studies have estimated the spillover effects of subsidized R&D. If the subsidization of R&D creates such effects, this will be expressed in the acceleration of the industry's productivity growth. An examination of the electronics industry shows that this effect was not evident in the 1990s; the rapid rise of product was due to the rapid expansion of physical capital and the number of hours worked, and the rate of productivity growth was lower than in manufacturing as a whole.

2. Market failure in financing risky projects: It is difficult to finance risky projects through bank credit, as if the project fails the bank loses its money, and if it succeeds it is mainly the entrepreneur who benefits (as the bank's return on credit is relatively low). This market failure can be solved at relatively low cost by extending government loans and not limiting royalties to the amount of the loan. Most R&D subsidies are channeled to large companies, many of which have access to the capital market, and only 15 percent is directed to start-up companies. According to Griliches and Regev, the development of venture capital funds and the surge in the value of high-tech companies on world stock markets have blunted the problem of financing and restricted the need for government intervention.

3. Fledgling industries: Industries that are R&D and human-capital intensive need a critical mass of know-how and skilled workers. Government aid at the fledgling stage will enable the development of an independent industry that enjoys comparative advantages. The subsidization of fledgling industries such as biotechnology is negligible, most of it being directed towards mature industries such as electronics and communications (75 percent in 1996). Thus, it would appear that fledgling industries are not receiving their due.

<sup>1</sup> Z. Griliches and H. Regev (1999), "R&D, Government Subsidy, and the Productivity of Manufacturing Firms in Israel," *Economic Quarterly*, 2/99, 335–356 (Hebrew).

Immigrants who work in manufacturing have more years of schooling than the established population in the industry; nonetheless, the return on education among immigrants is substantially lower than it is among the established population.

*c. Employment in manufacturing: immigrants and the established population*

According to the labor force and income surveys for 1998, immigrants employed in manufacturing are better educated than the established population in it: 53 percent of the immigrants have over 12 years of schooling compared with 32 percent of the established population. Nonetheless, the return on education among immigrants is considerably lower than it is among the established population. Although the return on immigrants' education has risen as their stay in Israel has lengthened, in 1998 the wages of immigrants who came in 1990–91 were still significantly lower than those of the established population with a similar level of schooling.

The low return on immigrants' education could be due to several factors, such as mismatch between it and the requirements of the domestic market, the need to learn a new language, the loss of years of specific experience and knowledge, etc. An examination of the employment of immigrants in manufacturing according to their occupational distribution, showed that the proportion of immigrants employed in managerial and professional occupations is lower than that of the established population, even though the immigrants' education level is higher. The wages of immigrants are also lower than those of the established population within the same occupational group, because the classification by occupation does not fully capture the gap between the human capital of immigrants and the established population, especially that acquired

A far smaller proportion of immigrants than the established population are employed in managerial and graduate positions, even though their level of education is higher.

**Table 2.15**  
**Share and Wage<sup>a</sup> of Established Immigrants in Manufacturing,**  
**by Years of Schooling, 1998**

	Established		Immigrated in 1990–98		Immigrated in 1990–91	
	Share in total employment	Wage relative to average	Share in total employment	Wage relative to average	Share in total employment	Wage relative to average
0–8	12	0.70	5	0.49	4	0.53
9–10	16	0.78	13	0.58	9	0.64
11–12	40	0.87	23	0.66	21	0.69
13–15	17	1.33	36	0.70	36	0.80
16+	16	2.06	23	0.89	30	0.92

<sup>a</sup> The wage of each individual was divided by the average wage in the sample.

SOURCE: Based on Central Bureau of Statistics data.

during years of work (immigrants have generally been employed in the same place for fewer years). The immigrants' bargaining power is probably less than that of the established population, enabling employers to pay them a lower wage relative to their skills.

The proportion of skilled workers in manufacturing rose from 16.7 percent in 1980 to 21.9 percent in 1989, while in the 1990s this proportion fell to 21.7 percent. The relatively low share of skilled workers among immigrants who came in the 1990s slowed the rise in the proportion of skilled workers in manufacturing, and the stagnation of their share in the 1990s served to slow the pace of measured productivity growth in manufacturing. Manufacturing TFP rose by an annual average of 1.35 percent in the 1990s, after 1.87 percent in 1966–89. This calculation of productivity does not distinguish between skilled and unskilled workers, so that the increase in the share of skilled workers in manufacturing in the 1970s and 1980s is mistakenly perceived as a rise in productivity rather than in human capital. In the 1990s the share of skilled workers in manufacturing remained stable, so that measured productivity in that decade is not biased upward, as it was in the past.

The rise in the proportion of skilled workers in manufacturing in the 1970s and 1980s has been erroneously perceived as an increase in productivity. The proportion of skilled workers remained constant in the 1990s, so that measured productivity is no longer biased upward.

**Table 2.16**  
**Share and Wage of Established Immigrants in Manufacturing, by Occupation, 1998**

	Established		Immigrated in 1990–98		Immigrated in 1990–91	
	Share in total employment	Wage relative to average	Share in total employment	Wage relative to average	Share in total employment	Wage relative to average
Managers and graduates	17	2.02	8	1.39	10	1.48
Professional and technical	8	1.51	10	0.90	16	0.86
Skilled workers	69	0.87	73	0.64	65	0.69
Unskilled workers	6	0.63	9	0.49	9	0.55

SOURCE: Based on Central Bureau of Statistics data.

### 3. Agriculture<sup>19</sup>

1999 was a bad year for agriculture; its product contracted by 6.3 percent, and its share in business-sector product fell.

The year 1999 was a bad year for agriculture and farmers, relative to both 1998—which was an exceptionally good year—and to the long-term average, and even to the period of recession.

Agricultural product contracted by 6.3 percent in 1999, compared with a 4.1 percent rise in 1998 and an annual average of 3–4 percent in the last decade (Tables 2.17 and 2.A.26, Figure 2.6). Agriculture's share in GDP at current prices<sup>20</sup> fell accordingly to about 1.7 percent in 1999 (and to 2.5 percent of business-sector product), compared with 3.4 percent in 1990, bringing it into line with the US and the EU—1.7 and 1.9 percent respectively in 1997.

**Table 2.17**  
**Indicators of Agricultural Production, 1991–99<sup>a</sup>**

	Average			(annual rates of change, percent)						
	1991–93	1994–96	1997–99	1993	1994	1995	1996	1997	1998	1999
<b>Output</b>										
Total output <sup>b</sup>	1.5	5.8	–0.8	2.6	2.6	9.8	5.0	–1.0	1.8	–3.3
Inputs <sup>c</sup>	0.9	3.2	–0.9	3.8	3.5	5.7	0.5	–2.2	0.0	–0.5
Gross product	2.3	8.8	–0.7	1.3	2.2	14.4	10.3	0.5	4.1	–6.3
Total farm real income	–4.3	0.7	–4.2	–11.8	12.2	4.5	–4.8	–3.3	11.3	–18.3
Real income from capital and own labor	–14.7	–6.7	–13.3	–25.0	16.2	–14.9	–17.8	–12.9	22.7	–39.0
<b>Factor inputs</b>										
Labor	1.0	3.6	3.0	11.4	1.1	5.6	4.2	0.7	5.0	3.5
Gross capital stock	–3.1	–1.4	0.0	–2.8	–1.4	–2.6	–0.3	–0.1	–0.2	0.4
Capital/labor ratio	–4.0	–4.9	–2.9	–12.8	–2.5	–7.7	–4.3	–0.8	–4.9	–2.9
<b>Productivity</b>										
Product/labor ratio	1.3	5.0	–3.6	–9.1	1.0	8.3	5.8	–0.2	–0.9	–9.5
Product/input ratio	3.0	7.2	–2.4	–4.0	2.1	11.9	7.8	0.2	1.2	–8.3
<b>Total exports</b>										
Citrus	–15.9	8.3	–5.6	–11.3	–1.4	36.4	–5.5	3.5	–13.6	–5.8
Other	6.3	19.9	9.8	9.3	16.8	20.3	22.7	9.8	12.3	7.4
<b>Prices</b>										
Output	7.4	6.1	4.1	5.6	10.1	1.2	7.3	5.5	5.6	1.4
Purchased imports	10.2	10.2	4.0	9.4	5.6	8.2	17.1	4.7	0.2	7.2
'Terms of trade' <sup>d</sup>	–2.5	–3.7	0.1	–3.4	4.3	–6.5	–8.3	0.8	5.3	–5.4

<sup>a</sup> Some figures may differ from Hebrew original as they have been updated; for footnotes, see appendix tables.

<sup>b</sup> Including intermediate product.

<sup>c</sup> Purchased and intermediate inputs.

<sup>d</sup> Input/output ratio.

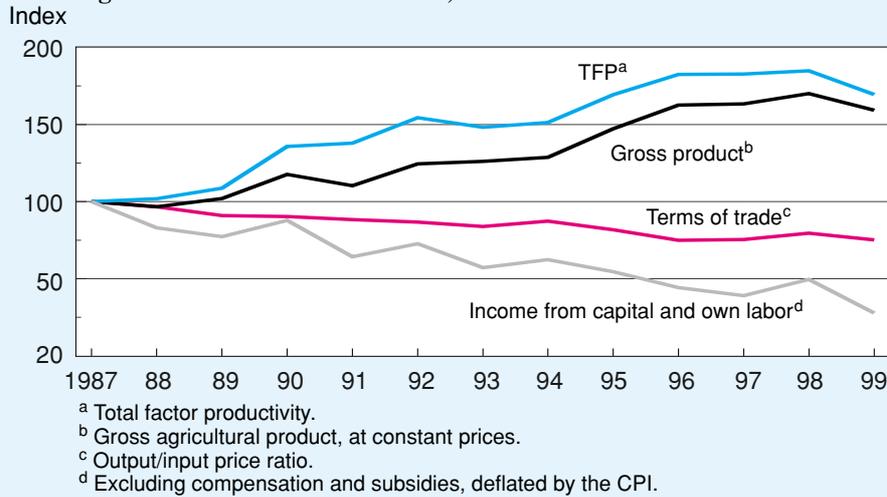
SOURCE: Based on Central Bureau of Statistics data.

<sup>19</sup> The discussion of developments in agriculture in 1999 is based on preliminary data (although some figures have been updated since publication of the Hebrew original); figures for 1995–98 have been updated.

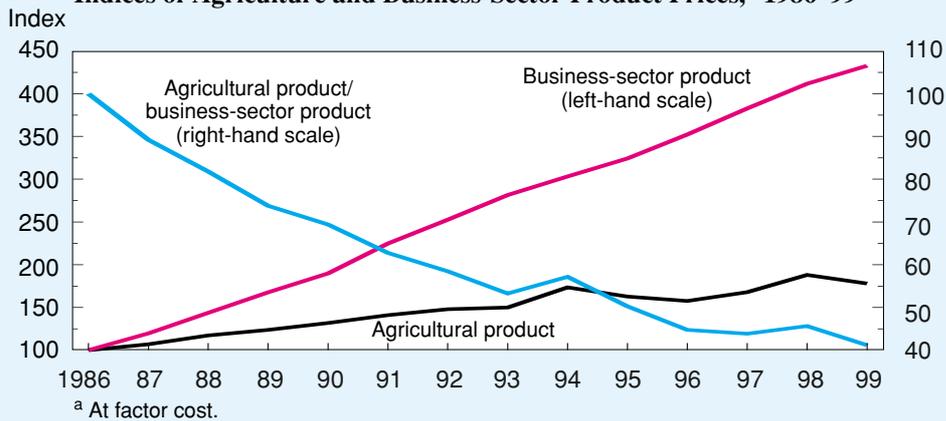
<sup>20</sup> At factor cost.



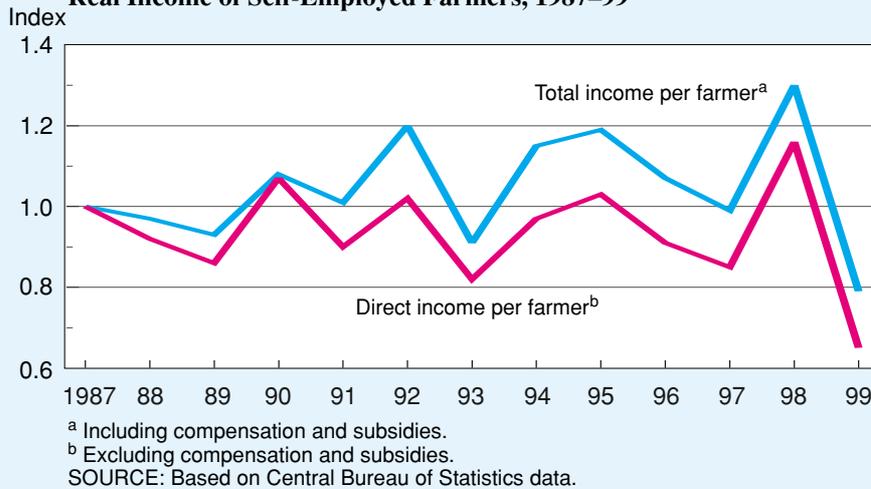
**Figure 2.6**  
**Agriculture: Selected Indicators, 1987–99**



**Indices of Agriculture and Business-Sector Product Prices,<sup>a</sup> 1986–99**



**Real Income of Self-Employed Farmers, 1987–99**



The industry was particularly hard-hit by severe weather, leading to a sharp decline in output and productivity, and a deterioration in output prices relative to input prices.

Total real income from agriculture plummeted in 1999, and real income from capital and own labor also fell, with no change in the number of independent farmers.

TFP fell by 8.3 percent in 1999, compared with an annual average increase of 4.2 percent in the last five years.

Crop output declined by 7 percent, while in livestock it rose in step with population growth. The adverse effects of bad weather, including the drought and water shortage, contributed most to the reduced output of crops.

The slump in agriculture in 1999 stemmed mainly from supply-side factors—output plummeted and the ratio of prices of output to purchased intermediates (the ‘terms of trade’) deteriorated, resulting in a decline in the relative price of agricultural product. The reduction in output was due principally to natural disasters, mainly the drought of the winter of 1998/99 and the effect (both direct and indirect) of heat-waves at critical points in the last two years; to these was added the water shortage, which severely restricted the possibility of resorting to irrigation. Changes in demand appear to have had only a secondary effect on the development of the domestic market in 1999 because the elasticities of demand (regarding both price and income) for agricultural product are relatively low. Notwithstanding, alongside the volume decline in total product directed to the domestic market the relative price obtained by farmers on the domestic market (annual average, for all agricultural produce) fell. Here, too, severe weather served to disrupt the seasonal marketing process of some crops.

In 1999 total real agricultural income declined (including delayed drought compensation, insurance compensation, and other additional transfers), and real income from capital and own labor fell even more steeply (39 percent). In contrast to previous years, this income was not affected by the reduction in the number of independent farmers, which remained constant apparently due to the difficulty of finding alternative employment during a period of recession. Since 1990 about half the independent farmers have left the industry, but this has not prevented the contraction of real (farm) income from own labor and capital of independent farmers—by an average of 34 and 27 percent respectively in the last five-year and ten-year periods.

The decline in both product and output in agriculture was not accompanied by an equivalent reduction in factors of production; labor input even expanded in 1999, and capital stock rose slightly, after a long period of decline. Thus, total factor productivity (TFP) dropped by an appreciable 8.3 percent in 1999, compared with an annual average rise of 4.2 percent in the last five years—due to the cumulative 24 percent rise in product, 20 percent increase in labor input, and 3 percent decline in capital stock. In a long-term perspective, since 1987 the main cause of agricultural expansion (an annual 3.6 percent) has been productivity (4.1 percent), the rise in which was partly offset by the decline in the weighted contribution of capital and labor (0.5 percent). These factors serve to stress how far 1999 deviated from both the short- and the long-term trends.

The marked decline in agricultural output in 1999, unparalleled since 1991, stems from a 7 percent drop in crop output, whereas livestock output rose in line with population growth. Particularly notable were the steep volume fall in field crops (including wheat and cotton), *inter alia* because of the reduction of seeded areas due to the drought and the water shortage, as well as in fruit and citrus, mainly because of bad weather (Table 2.A.27).

Agricultural production for export<sup>21</sup> (Tables 2.A.28 and 2.A.29) continued to contract this year too, for the third year in succession. Total production for export fell by 7

<sup>21</sup> In contrast with exports according to balance of payments data (see Table 2.17 and additional data in Chapter 6). According to foreign trade data, direct agricultural exports f.o.b. amounted to \$ 787 million in 1999.

percent in volume terms (as it had in 1991), and exports still accounted for 21 percent of total agricultural revenues. Crops accounted for most agricultural exports (94 percent), which were affected by the fall in the output of these branches.

The rise in the price to farmers of crop exports—over a third of revenues—was more than 6.4 in nominal terms in 1999.<sup>22</sup> Note that the real local-currency depreciation as a yearly average—both as calculated against the currency basket of agricultural exports and in accordance with the increase in prices in Israel and the target countries of these exports—was 1–2 percent in 1999. Thus, the average price to farmers did not fall in real terms.

The basket of purchased inputs in agriculture hardly changed in volume terms in 1999 despite the contraction of output. Expenditure fell on almost all purchased inputs except fodder—which accounts for 30 percent of total expenditure on purchased inputs at current prices and whose weight rose by 6.6 percent. The price of inputs rose by about 2 percent in real terms in 1999 (adjusted for the CPI), and by 5.7 percent adjusted for the prices of agricultural output. Altogether, agriculture's 'terms of trade' deteriorated in 1999 by a rate that completely offsets the improvement of 1998.

Expenditure on water accounted for about 11 percent of the aggregate expenditure on inputs in agriculture in 1999. The volume reduction of water input was 8 percent, and its relative price remained stable for the second year in succession. At the same time, the decline in the subsidy on water continued. The volume reduction of water input was considerably less than the 40 percent average cut in drinking water consumption to which the industry had committed itself—attesting to the difficulty of implementing the administrative cut and guaranteeing an appropriate compensation mechanism. The reduction of water consumption in agriculture should be implemented at a time when rain is relatively plentiful, so as to ensure a more even consumption of water in the long term. Cutting water quotas during a drought goes against this reasoning, and what is needed is either the expansion of the water-storage infrastructure or the permanent reduction of water quotas.

The relative importance of expenditure on water in agriculture is illustrated by the data for 1999: although this item accounts for 11 percent of expenditure on inputs, 6 percent of total income, and 11 percent of crop income, it accounts for 48 percent of the total return on capital and own labor. If we assume that this return is divided between crops and livestock in the same way as income is, according to the ratio of the expenditure on water to the return on capital and own labor in crops this item accounts for 80–85 percent of the return on capital and own labor in crops. This rough calculation can explain farmers' vehement opposition to raising the price of water and their fears that entire agricultural branches will be eliminated.

In 1999 investment in farm buildings, greenhouses, and internal irrigation systems rose by 2 percent—*inter alia* in the framework of structural changes in the livestock branches, e.g., consolidation and modernization of cowsheds, and the transition to

<sup>22</sup> The steep price increases in citrus exports in the last two years are biased upward, apparently reflecting a change in the composition of types of citrus fruit in the export basket.

Agricultural production for export continued to decline in 1999, and its share in the industry's revenue was 21%.

The price to farmers of crop exports rose by 6.4% in nominal terms.

Expenditure on purchased inputs did not change significantly, despite the decline in agricultural output.

Expenditure on water accounted for about 11 percent of total agricultural inputs in 1999. It fell by 8 percent in volume terms, while the relative price remained unchanged.

Gross investment in agriculture rose by about 2% in 1999.

Labor input in agriculture grew by 3.5% in 1999, and employment in it by about one percent. Non-Israelis accounted for 44 % of total employment.

larger units of production in poultry. Consumption of capital persisted in the latter branch until the mid-1990s; since 1996 the gross annual investment has fallen into line with the extent of annual discards, and in the last two years it has even risen. Note, however, that the level of gross capital stock (at constant prices) in 1999 was the same as it was in the mid-1970s.

Labor input in agriculture rose by 3.5 percent in 1999,<sup>23</sup> but the number of employed persons rose by one percent. The composition of employment did not change substantially: the number of foreign workers remained the same, the slight rise in the number of Israelis employed was offset in part by the decline in the number of Palestinian workers, and non-Israeli workers accounted for 44 percent of all employees. The fact that agriculture is based on such a high proportion of foreign workers, who are not seasonal employees, has become an established fact and has changed the character of the industry. A large part of the labor cost has become semi-permanent, enabling farmers to distribute activity across the seasons and to enter new branches while utilizing capital more intensively throughout the year.

An examination of the dramatic changes in the nature of employment in agriculture—and of the size of the units of production—raises many questions regarding the settlement role of agriculture and the social and economic structure of rural Israel. In the last five years the number of Israelis employed in agriculture dropped by 27 percent, and the number of non-Israelis (foreign and Palestinian workers) soared by 148 percent, with the total number of persons working in the industry rising by 5–6 percent. The rate of non-Israelis among the total labor force in agriculture rose from 19 percent in 1995 to 44 percent in 1999, as stated, and the proportion of independent farmers fell from 47 to only 29.5 percent in this period. It looks as if this process will persist, as new employment opportunities arise outside agriculture, and as the social and economic changes affecting settlement activity come to fruition (including the land policy arrangements). Israelis employed in agriculture as a share of total Israelis employed stabilized at around 2 percent (2.3 percent of labor input), while persons employed in agriculture as a share of total employment has remained at around 3.3 percent in recent years. The parallel rates in the US and the EU are 2.7 and 5 percent respectively.

The real contraction of subsidies to agricultural output (excluding transfers such as drought compensation) persisted in 1999.

Subsidies for agricultural output (including only open and direct subsidies, and excluding transfers, e.g., drought compensation) continued to contract in real terms in 1999—a process that began in 1995. Subsidies accounted for 6–7 and 3.3 percent of agricultural product and output respectively in 1999—less than half their rate in 1994. In the OECD countries the share of subsidies in agricultural production rose, though in the period reviewed they have always accounted for a far higher proportion of agricultural output there than in Israel.<sup>24</sup>

<sup>23</sup> In this section, data on employees and labor input in agriculture do not include persons employed in gardening.

<sup>24</sup> Precise comparisons are impossible due to discrepancies in definitions and the quality of data.

#### 4. Transport and communications

The economic significance of the transport and communications industry exceeds its share of business-sector product (13 percent) because it constitutes an infrastructure that serves all firms and households.<sup>25</sup> The 6 percent rise in the industry's product in 1999 continued to outstrip the growth rate of the business sector, and was evident in both transport and communications (Table 2.18). There was a 12 percent decline in investment in the transport infrastructure (Table 2.20) and a delay in resolving the grave transport problems in the Tel-Aviv conurbation. The decline stemmed from the 14 percent reduction of investment in roads and 38 percent drop in investment in trains. This is serious not only because of the shortage of infrastructure, but also because the process of reducing investment in structures in the other principal industries apparently freed factors of production suitable for infrastructure investment. As a share of GDP, Israel invests less than the European countries in its transport infrastructure, despite the accumulated backlog in this infrastructure and its singular importance for both economic growth and the quality of life. Total investment in this industry (including in vehicles) rose by some 11 percent, primarily due to the sharp increase in investment in ships and planes. Total factor productivity and labor productivity did not change in 1999, after both labor and capital inputs grew in step with the industry's product, 6 percent. The stability of labor productivity in this industry is the result of its 3 percent rise in transport and steep 10 percent drop in communications. Average data for the last four years paint a different picture for the industry as a whole: labor productivity grew

The product of the transport and communications industry grew rapidly, by about 6%, while its price lagged behind the rise in that of business-sector product by about 6%.

Investment in the transport infrastructure fell by 12%, alongside the decline in investment in roads and railways.

**Table 2.18**  
**Transport and Communications, Main Indicators, 1994–99**

	(annual change, constant prices, percent)									
	Total				Transport <sup>a</sup>			Communications and deliveries		
	1994–95	1996–99	1998	1999	1996–99	1998	1999	1996–99	1998	1999
Total gross product	14	7	10	6	5	4	5	10	19	7
Gross investment	9	2	–6	16	3	–6	22	–2	–4	–4
Capital stock <sup>b</sup>	8	7	7	6						
Employees	4	4	4	5	3	5	1	7	1	17
Labor input	5	4	4	6	3	5	2	7	0	19
Labor productivity	8	2	6	0	1	–1	3	2	19	–10
Total factor productivity	7	1	4	0						
Real labor cost <sup>c</sup>	2	4	1	1	3	–1	0	4	9	–1
Real wage <sup>d</sup>	–4	1	1	–1	2	1	0	–1	1	–5

<sup>a</sup> Including Palestinian employees.

<sup>b</sup> At beginning of year.

<sup>c</sup> Adjusted for transport and communications prices.

<sup>d</sup> Adjusted for the CPI.

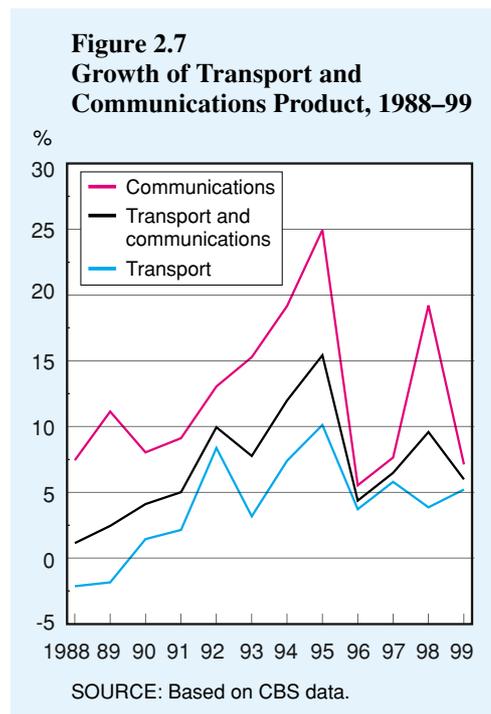
SOURCE: Based on Central Bureau of Statistics data.

<sup>25</sup> It can be claimed that the estimate of the industry's product is biased downward because road services, which are provided *gratis*, are not imputed to it. These services are also provided to the other industries, another reason for the downward bias of its capital productivity.

In the last three years, the period of recession, there was a marked slowing of the rise in business-sector product, while the transport and communications industry continued to grow rapidly, by about 7% a year, contributing about 1% annually to the expansion of business-sector product.

by 2 percent, and TFP by about one percent. The real wage per employee post rose by about one percent in that period, and labor cost by 4 percent, as relative prices in the industry declined, falling by about 6 percent in 1999 in both transport and communications, despite the steep rise in the price of oil (Figure 2.8 and Table 2.19).

The growth rate of transport and communications, which is a service industry, continues to outstrip that of the goods industries (manufacturing, construction, and agriculture). The product of the latter actually declined by 2 percent in 1999 while that of the services



rose by 6 percent (Table 2.A.10). This is consistent with the trend that characterizes modern economies—the increasing share of the services in GDP. Due to the relative increase in demand for the industry’s services, its product has continued to grow rapidly in the last three years—by an annual 7 percent in spite of the recession—compared with an annual increase of only 2.2 percent in business-sector product. The industry’s contribution to the rise in business-sector product in this period was about 0.9 percent a year, alongside an annual 3 percent decline in its price relative to that of business-sector product. This is in line with improvements on the supply side, which were concurrent with the relative increase in demand for the industry’s services.

The rise in the industry’s product in 1999 was supported by the rapid 9 percent increase in air transport services as the number of passengers climbed—both entries of tourists from abroad and departures by residents—its effect exceeding the decline in freight services (Tables 2.A.30 and 2.A.36), so that employment soared in this area. There is no longer any competition in internal flights in the north of Israel since one of the carriers has ceased operating in that region. In land transport, there has been a change in the use of public transport. The number of rail passengers rose by 38 percent, and the decline in the use of fixed bus routes was checked (Table 2.A.33)—developments that were fostered by road congestion. Although the direction of this trend is beneficial to the economy as public transport uses the infrastructure in an economical way, the intensity of the change is not significant. It is still too early to identify a trend shift among users away from private transport towards buses, and train travel is still negligible.<sup>26</sup> The extremely rapid rise in communications stems from both supply and demand factors (see section on communications).

<sup>26</sup> According to Ministry of Transport data, this is about 1.5 percent of all inter-urban journeys, and about 2.5 percent at peak travel times—significantly below the rate in western countries.

There was a marked rise in the product of air services in 1999. Use of public transport—mainly trains but also buses—also increased.

**Table 2.19**  
**Real Product and Prices in Transport and Communications, 1998–99**  
 (annual change, percent)

	Share in product 1998	Real product		Relative price <sup>a</sup>	
		1998	1999	1998	1999
Land transport	28	1	2	-1	-3
<i>of which</i> Buses	8	-1	3	-1	-10
Sea transport	12	5	3	11	-2
Air services	10	8	9	1	-1
Other	10	7	12		
Total transport	59	4	5	-5	-6
Communications	41	19	7	-6	-6
Total product	100	10	6	-5	-6

<sup>a</sup> Deflated by implicit index of business-sector product price (see notes to Table 2.A.30).

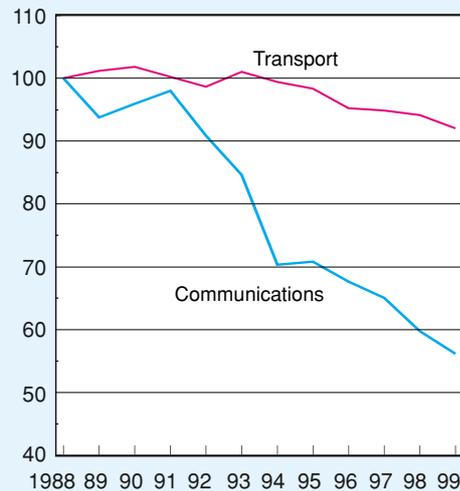
### *Competition, regulation, and efficiency in transport*

Transport is an infrastructure industry whose efficiency is important for all economic units, but in Israel this is impaired because of its traditionally centralized and uncompetitive character,<sup>27</sup> so that a concerted effort has to be made to promote competition. Although important government resolutions have been passed, and progress has been made in some areas, there is still a long way to go. Progress is difficult and slow because the parties active in transport are opposed to reforms.

**Air freight:** Another freight carrier has been granted a license to operate, so that freight capacity has increased considerably and rates have been reduced; the government has approved freight charter flights in principle, but this has not yet been put into practice. Passenger flights are still far from an ‘open skies’ situation, and restrictions arising from treating flight rights as the property of the national carrier, El-Al, are still in place. Resolutions that have been passed regarding the approval of regular regional carriers to supplement the services provided by El-Al for short flights have not been implemented, and decisions made regarding the authorization of

The efforts that have been invested in enhancing competition and efficiency in the transport industry have met with difficulties.

**Figure 2.8**  
**Relative Price Indices of Transport and Communications,<sup>a</sup> 1988–99**



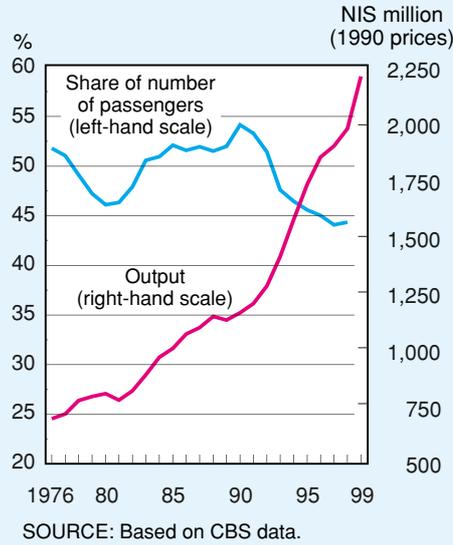
<sup>a</sup> Relative to business-sector product price; 1987 = 100.  
 SOURCE: Based on CBS data.

Competition has been created in air freight transport, but is being held up in air passenger transport.

<sup>27</sup> As of end-1999, air and sea travel are exempt from the terms of the Restrictive Trade Practices Law.

The implementation of the government's decisions regarding the ports is being held up.

**Figure 2.9**  
**Israeli Airlines: Passenger Numbers, Output, and Share of Passengers Landing in Israel, 1976–99**



Measures have been introduced to make bus services more efficient.

been thus opened have proved the advantages in service and particularly price to be gained from this—and by replanning routes. The latter is proceeding apace in Jerusalem and more slowly in Tel Aviv.

Legislation permitting a toll to be charged, thereby easing road congestion, is awaiting approval by the Knesset's Finance Committee. The government has also decided to reduce restrictions on automobile imports, including *inter alia* the appointment of an exclusive importer, in order to lower prices.

*Investment*

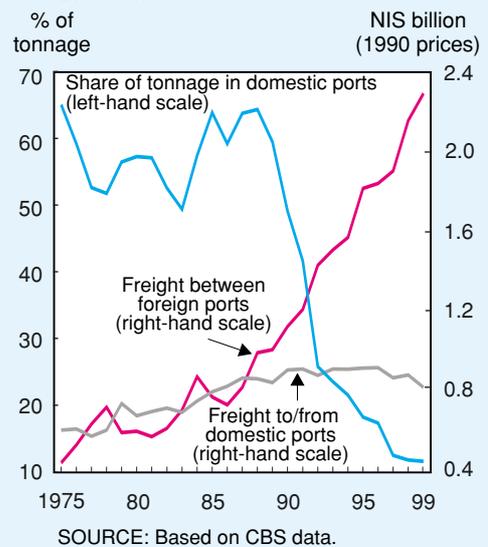
Total infrastructure investment in Israel fell by 17 percent in 1999, and investment in the transport and communications infrastructure, which accounts for 60 percent of all infrastructure investment, declined by 12 percent (Figure 2.12). Notwithstanding, studies in Israel and abroad have shown that because of the very high rate of return on infrastructure capital (in both

additional carriers under certain conditions have been put on hold. Only a few permits have been granted for additional charter flight destinations, and there are still no clear-cut criteria for authorizing charter flights. The restrictions regarding possible charter-flight destinations should be eased, and a decision has been made to permit another freight carrier to compete with the existing monopoly at Ben-Gurion Airport.

Opposition has held up the implementation of government decisions regarding sea-ports which could make them more efficient and enable the price of various services to reflect their cost (annulment of cross-subsidization).

Improvements are planned in bus services by opening routes up to competition—as the few routes that have

**Figure 2.10**  
**Israeli Shipping: Activities in Domestic and Foreign Ports, 1975–99**



physical and human capital) it is worthwhile increasing it as it stimulates economic growth.<sup>28</sup> At the forefront of the decline in investment was land transport (19 percent, Table 2.20 and Figure 2.13), principally in trains (38 percent) and roads (14 percent). The fall in road investment encompassed all the parties concerned—local authorities, the Public Works Department, etc., whose investment declined at similar rates. On the other hand, investment in the ports infrastructure soared in 1999—with a 23 percent increase in investment in airports (mainly ‘Ben Gurion Airport 2000’) and a 4 percent rise in sea-ports (mainly the Jubilee Port at Ashdod). Investment in transport vehicles, which is characterized by volatility, soared in 1999, rising steeply in ships and planes, and more moderately in buses. Investment in communications fell by 4 percent in 1999, the same rate as in 1998.<sup>29</sup>

Investment in the transport infrastructure declined by 12%, despite its considerable shortage. Investment in roads and railways plunged, but in sea- and airports rose.

**Table 2.20**  
**Investment in Transport and Communications, 1998–99**

	(percent)			
	Investment in 1999 (current prices)		Real change	
	Actual (NIS mill.)	Relative	1998	1999
1. Transport infrastructure <sup>a</sup>	4,415	26	20	–12
Air and sea ports	797	5	15	12
Land transport	3,618	21	38	–19
Roads	2,770	16	14	–14
Trains	459	3	108	–38
Other <sup>b</sup>	389	2	–9	10
2. Total vehicles	9,932	58	–19	47
Passenger cars	3,562	21	–5	–1
Ships and planes <sup>c</sup>	2,927	17	–75	
3. Communications <sup>d</sup>	2,894	16	–4	–4
4. Transport and communications infrastructure	7,309	42	9	–9
5. Transport and communications	17,241	100	–6	16

<sup>a</sup> Excluding vehicles.

<sup>b</sup> Transport services, local authority transport, and gas and oil pipelines.

<sup>c</sup> Adjusted for exports. The steep increase—over 1000 percent—in 1999 is not significant because of the volatility of this item and the low base.

<sup>d</sup> Including mail and package delivery.

SOURCE: Based on Central Bureau of Statistics data.

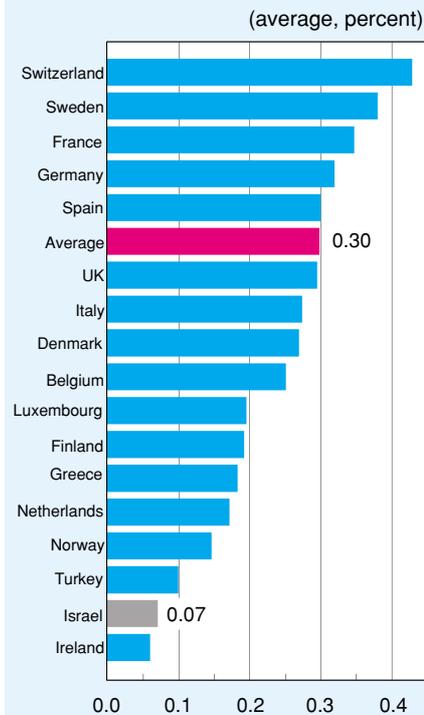
Investment in the transport infrastructure is significantly lower in Israel than the average in Europe in 1991–95: 0.9 percent of GDP compared with 1.4 percent (Figure 2.11B). The backlog in investment in these years is due to the low investment in land infrastructure, while as a share of GDP Israel’s investment in sea- and airports is at least equivalent to that of Europe: 0.14 percent vis-à-vis 0.10 percent. Naturally, this is

Investment in the transport infrastructure is substantially lower in Israel than in Europe.

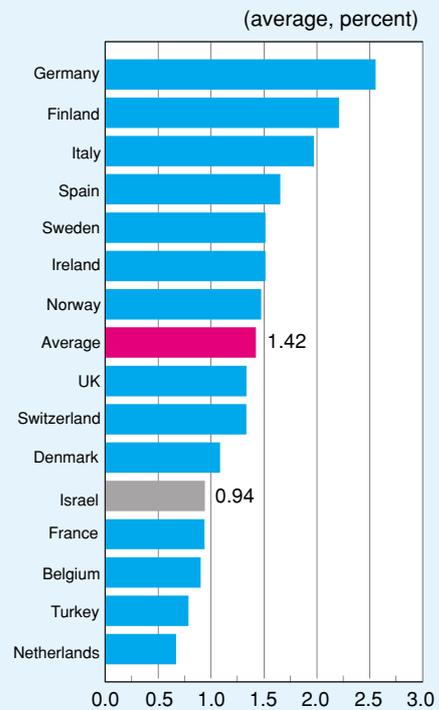
<sup>28</sup> See A. Bregman and A. Marom (1993), *Growth Factors in Israel’s Business Sector, 1958–88*, Bank of Israel, Research Department, Discussion Paper no. 93.02 (Hebrew), and A. Bregman and A. Marom (1999), “Productivity Factors in Israel’s Manufacturing Industry, 1960–66,” *Bank of Israel Economic Review* 72, 51–76.

<sup>29</sup> This statistic is suspected of downward bias.

**Figure 2.11A**  
Share in GDP of Gross Investment  
in Trains, 1987–95



**Figure 2.11B**  
Share in GDP of Investment in  
Transport Infrastructure, 1991–95



SOURCE: Israel: based on CBS data; ECMT: *Investment In Transport Infrastructure, 1985-1995*, ECMT Publications.

not necessarily enough to bring the ports to an optimum level; the congestion in the sea- and airports attests to the significant backlog in investment in them.<sup>30</sup> Israel's investment in railways lags far behind the European average in the period reviewed, being 0.07 percent of GDP compared with 0.3 percent, after years of minimum investment. The backlog in Israel's investment in roads is particularly prominent in comparison with a wide range of OECD countries—0.84 percent of GDP compared with 1.11 percent. Looking ahead, Israel's shortage of roads infrastructure is a cause for concern as it is reasonable to expect the intensity of automobile use to increase and approach the rate evident in western countries.

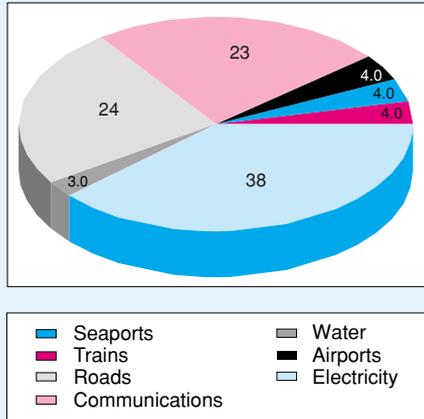
### *Communications*

Communications product soared in 1999, with a marked expansion in employment, fall in the average wage per employee post, and intensification of competition. The increase in product was due to the combination of increased demand for communications and information services with greater supply. This devolved from greater

<sup>30</sup> The congestion in the sea-ports is also due to their lack of efficiency.

**Figure 2.12**  
**Distribution of Infrastructure Investment, 1999**

(percent, current prices)



SOURCE: Based on CBS data.

competition and rapid technological development, which served to increase the quantity demanded by reducing the relative price of the industry's services (which also declined during the year), alongside the reduction of the price of infrastructure services, which are not subject to competition. The regulation of infrastructure services prices improved their structure by bringing the price of the various services more into line with their production costs.

Although the 7 percent rise in the industry's product in 1999 was far below its 1998 level (19 percent), it remained far above that of the other industries, so that its relative share in the business sector, whose product

rose by only 1.8 percent, continued to grow. The industry has not grown homogeneously, with particularly rapid expansion evident in the area of mobile phones (whose product rose by 25 percent), inland phone-calls<sup>31</sup> (by some 8 percent), and international phone services, which soared. The product of the cable TV companies rose by 5 percent, while the price of their services increased by 18 percent. Note that in the last five years the rise in the price of this service, which is provided by a monopoly, outstripped that of the other communications services, rising by 20 percent more than the increase in the CPI, while the price of the other communications services rose by far less than the increase in the CPI.

### *The transport and road infrastructure*

The level of infrastructure services in Israel lags far behind that in western countries, and suffers from a cumulative backlog. This makes it particularly disturbing that investment in the transport infrastructure fell by 12 percent in 1999 (Table 2.20) due to the decline in land transport investment (in roads and railways). Its share in GDP dropped by even more, and stood at about 1.2 percent—far below the OECD average of 1.4 percent. The fall in investment in roads—the main component of the transport infrastructure—was a particularly steep 14 percent, and as a share of GDP investment in them declined to 0.7 percent, compared with an annual average of 0.8 percent in 1991–96, and over 1.1 percent in the OECD countries.

<sup>31</sup> This includes Internet providers. The use of Internet services also depends on the cost of communications to the provider, as the user pays the Israel Telecommunication Corp. (Bezeq) in accordance with the extent of the connection at the rate for an inland call. Some countries provide local calls *gratis*, while others charge a global fee for Internet providers. This is expected to be the case once cable TV companies begin providing Internet services.

Communications product rose together with the increase in supply and demand, which arose from competition in the industry and technological advances.

Mobile phone services expanded significantly in 1999, and cable TV services became much more expensive.

Despite the dearth of transport infrastructure, investment in it fell in 1999. Investment in roads also contracted significantly.

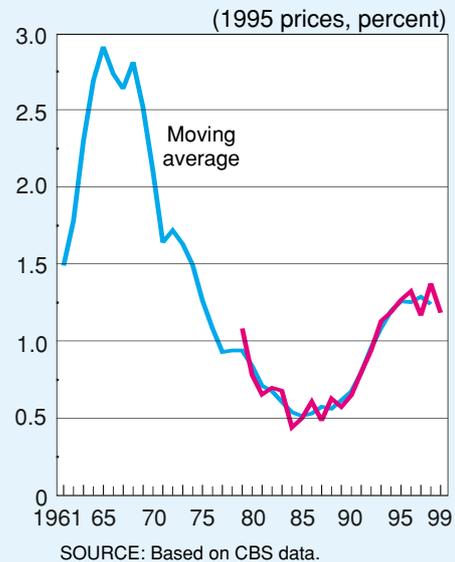
Israel's transport infrastructures are extremely congested, the result of many years of very low investment in them (Figure 2.13), even though this has risen in recent years. Immense investment is required in order to close the gap in road investment, but in effect investment has contracted even more—reaching its level in 1994 and 1995 as a share of GDP—mainly in roads that are the responsibility of the local authorities. Naturally, investment in roads should have risen in a year that investment in structures declined, thereby freeing factors of production that are suitable for investment in roads. Note that the organization of roads investment is not efficient, often because in many instances the new or widened roads are not opened in sections, preventing the utilization of

the investment as soon as it has been made; in addition, the lengthy process of road-construction disturbs drivers and constitutes a safety hazard.

Among major road-building projects are the development of the Carmel tunnels, which is waiting for statutory approval, and the mass transportation system in Tel Aviv, which has been delayed for many years—and is still being held up—*inter alia* because of the protracted discussion of the route of the first line. On the other hand, the project is going ahead in Jerusalem: the tender for the first line has been published and the winning group should be chosen at the end of the year 2001; the process of vacating downtown areas has begun and, if all goes according to plan, the line should be completed by the end of 2005. The Cross Israel Highway project is also going ahead, and the winner of the tender has begun work on it. This project like the light railway system in Jerusalem and the Carmel tunnels, is based on the BOT system. It is estimated that the return on the Cross Israel Highway will be very high,<sup>32</sup> over 30 percent, on the basis of the traffic it is expected to carry—if no toll is charged. A toll will serve to divert traffic to other roads (if a toll is not charged there), thus reducing the return on the Cross Israel Highway. Investment in the railways, complementing the land transport infrastructure, plummeted by 38 percent in 1999, mostly in investment in equipment.

According to indices of road congestion, while this dipped slightly in 1999 it still remains very high. The increase in kilometers driven per vehicle, representing the demand for road services, was lower than that in road capital and surface, representing

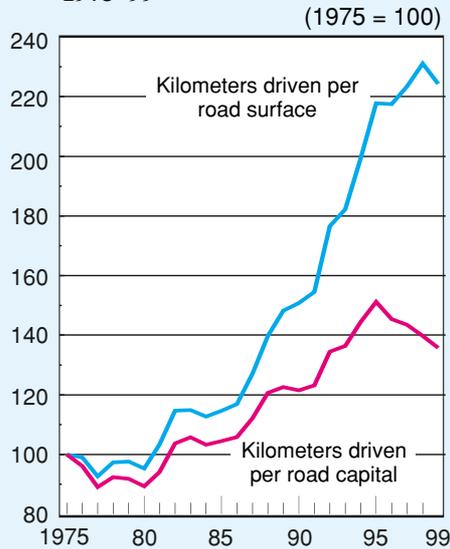
**Figure 2.13**  
Share in GDP of Investment in  
Transport Excluding Vehicles, 1961–99



The underground railway project for Tel Aviv has been delayed; plans for the light railway project for Jerusalem are advancing.

<sup>32</sup> The system whereby the entrepreneur builds, operates, and maintains the system, and eventually transfers it to the authorities.

**Figure 2.14**  
Indices of Road Congestion,  
1975–99



the supply of roads, so that these ratios indicate a reduction in congestion (Figure 2.14). Nevertheless, according to both these indices Israel's roads are still highly congested in comparison with both the 1970s and western countries. This is detrimental to economic and leisure activity, prolonging travel time, increasing fuel consumption, causing air pollution, and hence damaging both the quality of life and economic growth.

Note that the indices of congestion mentioned are averages and do not fully represent congestion at different times of the day and in different areas, especially in the metropolitan areas, where the situation is particularly bad. The damage caused by metropolitan congestion is not limited to the ongoing situation described above but

also involves long-term harm to city centers, most of which is irreversible. City centers are weakened by the development of alternative business centers at the periphery and the expansion of the suburbs. Since living in these suburbs involves having an automobile at one's disposal, their development requires support of the physical and community infrastructure. Hence the importance of rapidly improving metropolitan transport systems—especially public transport, which is economical in its use of the infrastructure—and of advancing mass transportation systems. The latter utilize the infrastructure more efficiently than buses (and certainly more than automobiles), as well as causing less pollution.

## 5. Construction

This year was the third in succession of a continuing and deepening recession in construction, expressed this year in an accelerated decline in all the components of the industry's product and output—which fell by 10.7 and 12.4 percent respectively (Tables 2.21 and 2.A.37).

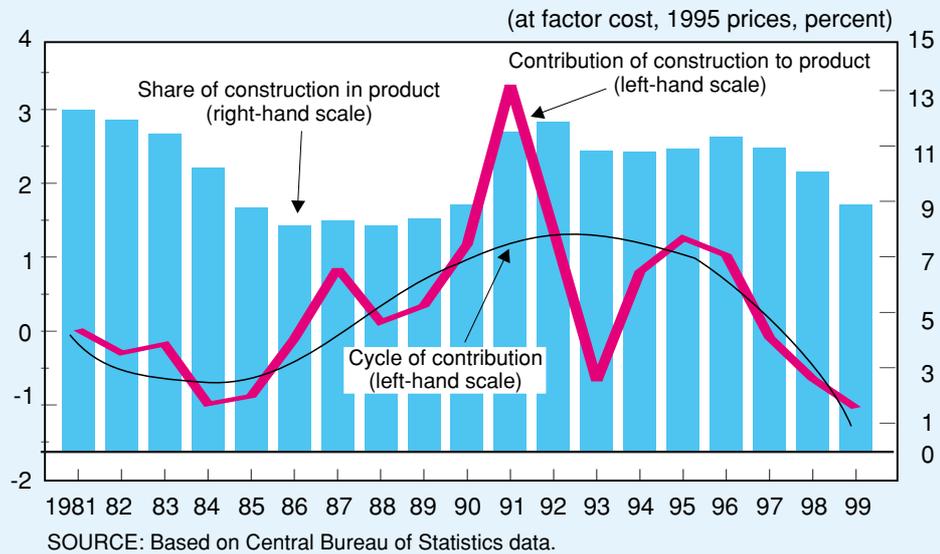
The slump in construction contrasts with its rapid growth rate—an annual average of 12 percent—in 1990–95, when the influx of immigrants was being absorbed. Activity in the industry in the last few years, and in 1999 in particular, reflects the conclusion of the process of adjusting the stock of residential and nonresidential structures to the sharp change in population size, product, and number of employees in the early 1990s as well as the high mortgage interest rate and economic slowdown. The output of the

According to indices of road congestion, this has eased to some extent, but is still high.

Congestion harms metropolitan centers and accelerates the process of suburbanization.

The slump in the construction industry persisted, and its product fell by 12.4 percent.

**Figure 2.15**  
**Direct Contribution of Construction Product to Business-Sector Product, 1981–99**



Construction activity in 1999 and the last few years reflects the waning of the process of adjusting the stock of buildings to the change in population size, product, and the number of employed persons in the early 1990s.

The industry's share of GDP continued to shrink, and stood at about 9 percent.

The industry's contribution to business-sector product in 1999 was a negative 1.5 percentage points.

Residential construction output contracted by about 11 percent in 1999; nonresidential construction output fell by some 16 percent.

construction industry is defined as investment in residential and nonresidential structures, and is primarily the result of the area of building starts in the preceding period; consequently, the 1999 data express the slowing of business-sector product growth in recent years. Developments in the industry during 1999 (according to seasonally-adjusted figures and various indicators) were not unequivocal as regards its emergence from the slump in the second half of the year. As a share of GDP (at constant prices), the construction industry continued to contract to about 9 percent—identical to its share in 1988 and 2–3 percentage points below that in the first half of the decade. Nonetheless, the absolute level of its activity was between 1.5 times and twice what it was in 1988, before the influx of immigrants—as reflected in product, output, area of building starts and completions, and inputs of labor and capital. Taking into account construction's relative share of business-sector product, the industry's contribution (both direct and indirect, via other industries) to this was a negative 1.5 percentage points, in addition to declines of 0.9 and 0.3 percent in 1998 and 1997 respectively (Figure 2.15).

The accelerated decline of output characterized both residential and nonresidential construction. The output of residential construction contracted by 11 percent in 1999, compared with 7.4 percent in 1998. The steep drop in government-initiated construction was notable this year, falling by 29 percent after a 17 percent decline in 1998. To the faster fall of nonresidential construction output (17 percent) was added the 15 percent decline in earthworks due mainly to the marked reduction of road investment; this is connected *inter alia* with the completion of the transport projects of local authorities and municipalities in 1998, before the general election, causing nonresidential construction output to plummet by 16 percent in 1999 after a relatively moderate decline

**Table 2.21**  
**Output and Product in Construction, 1986–99<sup>a</sup>**

	1998	1999	Annual average change (percent)						
			1986–89	1990–95	1995	1996	1997	1998	1999
Total output ( <i>millions of 1995 NIS</i> )	34,806	30,502	3.3	14.2	17.3	6.0	-1.3	-5.6	-12.4
Residential	17,339	15,453	3.1	13.3	26.9	6.2	-0.3	-7.4	-10.9
Nonresidential	15,117	12,722	5.6	18.9	10.7	5.2	-2.6	-4.4	-15.8
Other <sup>b</sup>	2,350	2,327	-1.3	0.6	-1.5	10.4	0.7	0.8	-1.0
Total area of building starts ( <i>thousands of sq. m.</i> )	9,266	7,960	1.4	21.6	31.6	-10.7	-6.0	-16.4	-14.1
Residential	6,765	5,945	2.8	20.2	47.1	-13.5	-5.2	-12.1	-12.1
Nonresidential	2,501	2,015	-2.6	25.5	4.5	-4.1	-7.9	-26.0	-19.4
Residential starts (thousand units)	44	37	-1.3	23.7	63.4	-19.8	-9.0	-16.0	-14.9
Residential completions (thousand units)	53	43	-2.6	9.6	13.9	35.4	25.4	-19.9	-17.8
Change in construction product			3.7	7.5	11.3	5.3	-0.7	-5.8	-10.7

<sup>a</sup> Calculated from unrounded figures; some figures may differ from Hebrew original due to corrections.

<sup>b</sup> Includes defense construction and an estimate of maintenance.

SOURCE: Based on Central Bureau of Statistics data.

in 1998. Two processes acted to reduce this component of construction output: the first is short-term and has been discussed above and in previous annual reports, namely, the adjustment of capital stock to the level of business-sector product and employment required by the conclusion of the process of immigrant absorption and the creation of surplus supplies of structures in manufacturing and commerce as well as office buildings. The second process, which is long-term, is indicated by data on the components of capital stock in the principal industries, which show that since the 1970s there has been a steady decline in the share of capital stock in structures in total capital stock. This is a result of the change in by-industry structure, shifting towards industries that are equipment- and technology-intensive as well as the transport and communications industries, and also of a longstanding policy of taxation and benefits. This preferred investment in equipment to structures, and did not act to expand the infrastructure in a way commensurate with demand, which grew with the rise in the population, product, and the standard of living. From the 1960s to the end of the 1990s the share of structures in capital stock fell from over 60 percent to 50 percent.

In 1999 residential construction output constituted 51 percent of the industry's total output—similar to its share in 1990—after investment in residential buildings shrank markedly in the last three years (by a cumulative 18 percent), in response to the contraction of demand. In each of the last three years an average of 42,000 households have been added (over half of them immigrants); at the same time, the annual average was 44,000 residential building starts and 54,000 completions. A comparison of the annual growth rate of the number of households with that of residential capital stock (at constant prices) indicates a rise in the ratio of residential capital stock per household.

The conclusion to be drawn from these figures is that disregarding the geographical dispersion of demand and supply, the residential market has stabilized, and short-term excess demand has shrunk appreciably; this follows several years of considerable excess

In recent years an average of 42,000 households have been added each year, alongside 44,000 building starts.

The residential market stabilized, short-term excess demand contracted markedly, and on a national level the average relative price of housing declined.

demand, pushing up the relative price of housing at the time. On the other hand, as the market stabilized on a national level, the average relative price of housing units fell. At the beginning of 1999 a new method of measuring the price of housing services and of owner-occupied housing services was adopted (see Chapter 3 of this and last year's *Annual Report*).<sup>33</sup> While the depreciation of the dollar had a short-term effect on housing prices, in the last two years it has led to a cumulative 9–10 percent decline (annual average) in housing prices in dollar terms, after a 27 percent increase in 1995–97.

**Table 2.22**  
**Indicators of Construction Activity, 1986–99**

	1998	1999	Annual average change (percent)						
			1986–1989	1990–1995	1995	1996	1997	1998	1999
Employees ('000s) <sup>a</sup>	235.3	223.3	2.3	10.1	9.8	8.0	1.3	–5.4	–5.1
Israelis	131.4	120.3	–0.2	12.4	3.3	4.4	–2.5	–10.4	–8.4
From Autonomy and administered areas	60.4	64.6	6.0	–6.3	–18.3	–12.9	28.1	42.5	7.0
Foreign workers	43.5	38.4		50.0 <sup>e</sup>	114.6	36.5	–3.9	–27.1	–11.7
Construction equipment capital stock (1995 NIS million) <sup>b</sup>	7,650	8,291	–4.6	11.2	19.6	19.9	13.8	11.0	8.4
Cement sales ('000 tons)	5,087	4,813	2.9	18.1	24.0	–9.8	–2.4	–7.8	–5.4
Labor productivity <sup>c</sup>			3.0	2.0	–0.8	–4.1	–1.7	1.1	–4.9
Total productivity <sup>d</sup>			3.9	3.3	–1.3	–5.5	–3.6	–1.9	–7.2
Residential construction time (months) <sup>e</sup>	22.1	22.5	–2.3	–0.6	0.0	–1.9	5.0	4.2	1.8

<sup>a</sup> From national accounts data of the Central Bureau of Statistics.

<sup>b</sup> Beginning-of-year stock.

<sup>c</sup> Product per hour.

<sup>d</sup> Product per weighted unit of capital and labor.

<sup>e</sup> Private construction.

SOURCE: Based on Central Bureau of Statistics data.

The reduction of employment in construction led to the contraction of employment in other industries, in accordance with the intensity of their interaction with the industry (see Chapter 4). In the last two years the number of persons employed in the industry has fallen by 25,500—10 percent of the peak level (in 1996 and 1997)—compared with a 17 percent drop in output. Some 84 percent of those dismissed in construction in the last two years were foreign workers,<sup>34</sup> but most of them were replaced by Palestinian

<sup>33</sup> The demand for housing as an investment, the importance of which has declined in the last few years, has not been taken into account. The same applies to changes in the stock of unsold and unoccupied housing units and those used for business purposes, which can be used for accommodation given appropriate tax and economic viability conditions, etc.

<sup>34</sup> The statistical reliability of the data on foreign and Palestinian workers is limited, *inter alia* because some of this employment is not reported outside the framework of permits and special arrangements in the industry. An estimate of unreported workers is included in the figures on the labor force and labor input in this chapter.

workers, so that in the last few years the industry's dependence on non-Israeli workers has increased, and they account for 46 percent of the labor force. Only in 1990, when the industry began to expand due to the influx of immigrants and before the employment of foreign workers became established, was the rate similar, but then it was based solely on Palestinian workers. Long-term labor input data for the industry reveal quite sharp annual fluctuations, attesting to impressive flexibility of employment in it, made possible to a large extent by the employment of foreign workers. In the last two years twice as many Israelis as foreign workers have been dismissed, due to a great extent to considerations of the relative cost to the employer of employing foreign workers (this being more worthwhile to the employer than it is to the economy as a whole). In addition, given the wage and labor conditions of the industry, Israelis tend not to work in certain types of construction work.

In 1999 the rise in the industry's capital/product ratio, which accelerated in the last two years with the decline in its product, persisted. Labor productivity (product per hour worked) declined by 4.5 percent in 1999, because the reduction in product exceeded that in labor input, in contrast to the situation in 1998, when labor productivity rose by one percent.

Labor productivity declined by 4.5%.

Cumulative total factor productivity fell by 17 percent in 1996–99, i.e., by an annual average of 4.6 percent, compared with an annual average of only 0.2 percent in 1990–94. In other words, when the industry was expanding the increase in inputs was accompanied by an even greater rise in product, while when it contracted the fall in product was only slightly less than that in inputs. TFP dropped by 7.2 percent in 1999—more steeply than it had in previous years since 1996.

TFP fell by 7.2%—more steeply than in any other year since 1996.

### *Residential construction*

On average, 1999 was a continuation of 1998 as regards the demand for housing. The rate of population growth remained the same as in the preceding year, as did the growth rate of the number of households, which is the dominant factor in the demand for housing. It is estimated that in 1999 there were 44,000 additional households. The accelerated increase in the number of immigrants in 1999 (29 percent more than in 1998) was not sufficient to have a significant effect on the housing market that year, while the potential demand for units by immigrants who arrived in the last few years has undoubtedly largely been met, and the number of immigrants has declined. In the last few years the proportion of persons in the 20–34 age-group in the population has remained stable, so that in this respect there has been no additional pressure from higher marriage rates and the establishment of households with the concomitant demand for housing. The economic slump, and with it unemployment, have served to dampen both demand for and investment in residential construction. The slowdown in activity—expressed *inter alia* in the negligible rise (1.1 percent, less than in 1998) in per capita gross disposable private income from all sources—increases uncertainty regarding the ability to repay mortgages and deters potential home-purchasers. Early purchases of apartments in the fourth quarter of 1998, because of the sharp NIS depreciation and the fear of future price-increases, also reduced demand in 1999. Towards the end of the

No special demand pressures increased housing demand.

At the end of 1999 real-estate transactions accelerated in order to avoid the adverse effects of the reform of property tax.

The reduction of inflation served to dampen demand for apartments as a component of the public's asset portfolio.

year, however, transactions surged—according to real-estate tax receipts—this time in order to pre-empt the property-tax reforms which were implemented in January 2000 (when the number of transactions dropped again); the reform is expressed in taxes on sales of residential units and of real-estate and land for business use, as well as in a change in the purchase-tax brackets on residential units. The annulment of property tax on land may dampen the incentive to build on private-sector land. Naturally, it is difficult to assess the net effect of all these on demand in 1999, just as the impact of expectations that the tax-exemption on rental apartments will be cancelled is not clear.

The slowing of the inflation rate appears to have acted to reduce demand for housing as a component of the public's asset portfolio. This may be concluded from a study<sup>35</sup> which shows that the long-term risk of an apartment, adjusted for the effect of inflation, is similar to that of other risk-bearing assets, so that it serves as a means of insuring solely against the uncertainty embodied in inflation. Given Israel's inflation situation, owning an apartment hedges against the uncertainty inherent in inflation, and when it declines, so does the demand for apartments as an investment asset. In addition, following the liberalization of foreign exchange control Israelis are permitted to invest in real-estate abroad, some of it doubtless serving as a substitute for investment in real-estate in Israel. In effect, in the first ten months of 1999 investment by Israelis in real-estate abroad amounted to \$ 500 million.

**Table 2.23**  
**Indicators of Supply and Demand, the Housing Market, 1990–99**

	Annual average				
	1990–95	1996	1997	1998	1999
Permits for private residential construction		35,164	35,971	34,092	29,730
Number of transactions <sup>a</sup>	115,619	117,780	96,643	88,675	93,707
Residential land (units) <sup>b</sup>	40,333	36,640	30,219	18,434	28,299
Private-sector apartments <sup>c</sup>	12,848	17,100	16,460	15,466	15,919
Housing loans taken by eligible persons	51,545	54,987	45,578	41,062	40,226
<i>of which</i> Immigrants	22,322	21,456	14,937	9,988	9,764
Young couples	16,266	21,485	20,336	26,100	23,620
Total mortgage loans	11,781	17,865	18,737	17,257	19,593
(NIS million, current prices)					
<i>of which</i> Nondirected	6,310	12,157	13,684	12,815	14,426
Average interest on nondirected mortgages of over 15 years	5.16	5.61	5.13	5.93	6.26

<sup>a</sup> By date of implementation of transaction; including new and second-hand apartments, and unrequited gifts to relatives; excluding bequests, apartments sold as part of a farm, protected rental apartments occupied when the sale went through, some apartments in industrial or commercial buildings sold as a package deal, and the 'Build your own home' program.

<sup>b</sup> According to number of transactions implemented (as distinct from those offered); data from Israel Lands Administration; excluding units as yet unplanned.

<sup>c</sup> Until 1998, in the 24 largest towns; as of 1998, in the entire country.

SOURCE: Based on data from the Ministry of Construction and Housing, the Israel Lands Administration, and the Income Tax Commission.

<sup>35</sup> Y. Rubinstein (1999), "Apartment Prices in Israel, 1974–96: A Financial Bubble?" in L. Leiderman (ed.) *Inflation and Disinflation in Israel*, Jerusalem, Bank of Israel, Research Department (Hebrew).

Financing of apartment purchases had opposing effects in 1999: as a result of the higher cost of financing sources, the interest on nondirected mortgages was higher than in 1998, averaging 6.3 percent and deterring potential purchasers; on the other hand, in the wake of the report submitted by the Gadish Committee (regarding assistance to the eligible population) a greater proportion of the price of an apartment bought by young couples and new immigrants was financed, with preferential treatment being awarded to those with a high level of eligibility (Tables 2.23 and 2.A.39). At the same time, the subsidization of loans to eligible persons rose, as a result of the widening of the spread between the interest rate on mortgages for eligible persons and the market rate. It is not clear if the preferential treatment in and of itself—given the extent of the aid extended—constituted a substantial addition to the housing loans granted to eligible persons. A comparison with the budget expenditure on grants, the subsidization of interest, and the subsidization of indexation in loans for actual housing purchases in 1998 shows that this expenditure item rose by 16 percent in real terms (adjusted for the CPI) in the 1999 budget, and amounted to NIS 2.2 billion, compared with NIS 1.8 billion in 1998. Total mortgage loans, including supplementary loans, rose by 8 percent in real terms in 1999. Outstanding housing credit of the public from mortgage banks amounted to NIS 116 billion at the end of 1999, compared with NIS 106 billion at the end of 1998—a real increase of 8 percent. The ratio of this credit to housing capital stock (plus imputed land value) dipped from 16 percent at the end of 1998 to 15 percent at the end of 1999. Nevertheless, the number of eligible persons taking mortgages declined by 2 percent, the reduction among young couples being particularly notable. Housing demand trends may be inferred from several other indicators: the number of transactions (new and second-hand apartments) rose by 5.7 percent; private-sector apartment sales also increased, and it appears that during the year fewer people were waiting for housing prices to fall further. The results of the Bank of Israel's Survey of Companies stress the importance of the demand constraint on the expansion of economic activity, which peaked in the first quarter of 1999, since when its effect has been waning, even though it has remained above the 1998 average. The process of prolonging construction time (in private construction) persisted in 1999, albeit at a more moderate rate than in 1998. This development reflects the continued abatement of demand, as the pace of construction is in step with that of apartment sales.

On the supply side, the contraction of building starts persisted in 1999 for the fourth consecutive year, at a rate similar to that evident in 1998—some 15 percent—and this has implications for activity in the industry in the next two years. Seasonally-adjusted data show that the decline was temporarily checked in the second quarter of 1999 and began again in the fourth. For the year as a whole, the rate at which building starts declined was the same as it was in 1998. The number of apartments whose construction was completed fell in 1999 for the second year in succession (by about 18 percent), reflecting the drop in building starts in 1996 and 1997. Concurrently, since 1997 the stock of apartments under construction has contracted; in December 1999 this was 76,200, compared with 82,600 at the end of 1998. Although these levels are lower than they were in 1995–97, they are higher than they were in 1992–94. The contraction of

Interest on nondirected mortgages rose, as did the extent of subsidization for eligible persons.

The number of eligible persons taking housing mortgages dipped by 2 percent.

The number of building starts fell at the same rate as in 1998—15 percent.

The number of building completions declined by about 18 percent.

**Table 2.24**  
**Selected and Relative Construction Prices,<sup>a</sup> 1986-99**

	(change over previous period, percent)									
	Apartment prices					Rent relative to CPI	Input prices	Output prices	Product prices	
	Prices	Relative to CPI <sup>b</sup>	Relative to input price index	Relative to \$ exchange rate	Relative to CPI					
1986-89 (annual average)	24.1	-1.1	-2.5		2.4	27.2	29.9	32.2		
1990-95 (annual average)	22.8	8.1	9.6		3.0	12.0	11.9	13.7		
1995	15.1	4.6	3.4	15.2	-5.4	11.3	10.3	11.2		
1996	16.0	4.2	7.4	9.3	-0.2	8.0	8.1	8.9		
1997	9.1	0.1	1.0	0.6	2.7	8.0	7.9	9.8		
1998	3.7	-1.7	-1.6	-5.7	4.9	5.3	5.2	8.1		
1999	4.4	-0.8	-0.5	-4.3	-4.9	4.9	4.9	5.6		
1997										
I	3.0	0.7	0.9	0.5	0.0	2.1				
II	2.8	0.3	0.5	-0.9	1.1	2.3				
III	1.9	-0.3	-2.9	0.3	1.6	4.9				
IV	-0.7	-1.7	0.0	-1.3	-0.4	-0.7				
1998										
I	0.5	0.6	0.3	-1.1	2.2	0.2				
II	0.7	-0.9	-0.5	-1.5	0.4	1.2				
III	0.0	-1.1	-2.6	-2.4	0.7	2.6				
IV	6.2	1.1	4.7	-4.8	4.8	1.4				
1999										
I	-0.6	0.0	-1.2	2.8	-1.8	0.6				
II	-0.7	-1.0	-1.7	-2.1	-0.5	1.0				
III	1.3	0.1	-0.9	-1.3	2.2	2.2				
IV	0.5	-0.5	1.6	0.8	0.1	-1.1				

<sup>a</sup> At current prices.

<sup>b</sup> In January 1999 the method of calculation by the Central Bureau of Statistics was changed.

SOURCE: Based on Central Bureau of Statistics data.

the stock of unsold apartments was due *inter alia* to the interest rate on credit to construction companies. Many of these apartments have been sold, but the overall estimate of the available stock of apartments should take into account unoccupied apartments that are not under construction, or that are used for purposes other than accommodation. There has also been a marked decline (11 percent) in the number of permits for private-sector construction, serving as another indicator of expectations regarding supply and demand in the next two years. According to the Bank of Israel's Survey of Companies, in the second half of 1999 the longstanding decline in building starts and completions, most of them residential, was checked.

The extent of activity in the industry is linked to the sale of land for residential construction, and in 1999 this rose to 28,300 units. While this level is considerably higher than in 1998, it is still far from the annual level on which the government decided in order to rein in apartment prices. During the year the number of building contractors submitting bids for land sales tenders rose, and the number of tenders awarded or transactions cancelled fell. As was pointed out in last year's *Annual Report*, if the intention of the Lands Administration is to be pro-cyclical, an increase in the supply of land can be expected as the industry emerges from the recession. The constraint is the shortage in the stock of planned and available land, because of limitations due to complicated planning and approval procedures (planning committees, ministerial authorizations, district borders, etc.). These are in addition to the uncertainty that still surrounds the extent of the re-assignment of agricultural land for residential construction purposes and the compensation to be paid to farmers for their land. Note that at the interest rates and apartment prices currently prevailing in Israel contractors tend to buy land for construction when the chances of selling apartments early in the course of the construction process are good (except in cases when they are waiting for greater profits due to land-betterment and a change in its purpose); consequently, the extent of land sales in a slump is limited by the demand side, too.

Sales of land were higher in 1999 than in 1998, and amounted to 28,300 units.

## 6. Commerce and services

The long-term trend apparent in many industrialized countries—the growing share in the economy of the service industries—persisted in Israel in 1999, too. Evidence from other countries shows that the higher the standard of living and per capita income, the greater is the share of the services in GDP. In 1999, in line with the annual average since 1995, the real growth rate of the services output was higher than that of the entire business sector (about 5 percent, compared with a moderate growth rate of less than 2 percent in the business sector). The expansion of commerce in 1999, as in previous years, was more moderate—only 4 percent (Tables 2.25 and 2.27). The joint product of the commerce and service industries accounts for about half that of the entire business sector: its share rose from around 48 percent in 1995 to 53 percent in 1999, so that its contribution to the rise in business-sector product this year was about 3 percent.

The share of the services in the economy continued to rise, as expected, and their contribution to business-sector product was 2%.

The structural change in both the services and commerce persisted in 1999; the most rapid growth throughout the recent years of recession and even beforehand was

**Table 2.25**  
**Commerce and Services,**  
**Main Indicators, 1995–99**

	(annual change, percent)		
	1995–98	1998	1999
Product	7	7	5
<i>of which</i> Commerce	3	1	4
Services	8	9	6
Labor input	4	2	4
Capital stock <sup>a</sup>	10	11	8
Labor productivity	2	4	1
Total productivity	0	1	0
Real wage <sup>b</sup>	2	1	1
Real labor cost <sup>c</sup>	1	-1	-2
Relative price <sup>d</sup>	1	1	2
Exports	6	12	17
Investment	3	-12	3

<sup>a</sup> At beginning of year.

<sup>b</sup> Relative to CPI.

<sup>c</sup> Relative to output prices.

<sup>d</sup> Relative to business-sector prices.

SOURCE: Table 2.A.40.

in business services, insurance, and financial institutions. Both direct and indirect demand expanded particularly in more tradable services—computer and software services, R&D in start-ups, and employment agencies. This trend is in line with and complements the rise evident in the last few years in the production and especially export of high-tech product, which are human-capital-intensive. This brought in its wake the development of allied services—banking and other financial services, insurance, business consultancy, accountancy, legal services, advertising, public relations, etc. There was also a real 8 percent rise in 1999 in the revenue of all the business services, after this grew by

13 percent in 1998 (Tables 2.26 and 2.27). This business activity appears to be connected with both the trend towards outsourcing and the expansion of foreign investment in business in Israel and in stock-market activities in Israel and abroad. Note, too, that 1999 was an election year, when resort to some of these services intensified.

Total hotel and catering services product grew by 3 percent in 1999, and as an average over the last five years this has grown by 5 percent, outstripping the growth rate of business-sector product (Table 2.27). Hotel services rose by 9 percent in 1999, with the increased demand from foreign tourists and 15 percent growth in the number of tourists, restoring the industry to its peak level of 1995. Since internal tourism compensated in part in previous years for the decline in incoming tourism, the sharp

The marked expansion of business services was concentrated in computer and software services.

Tourism returned to its record level of 1995.

**Table 2.26**  
**Business Services Revenue, 1995 and 1997–99**

	(percent)				
	Share in GDP		Real increase		
	1995	1999	1997	1998	1999
Computer services and R&D <sup>a</sup>	13.1	22.8	17.6	50.2	4.9
Employment services	9.1	9.4	5.4	13.2	5.3
Security and cleaning	8.7	7.4	6.5	3.0	4.6
Other business services <sup>b</sup>	49.8	45.9	5.2	4.4	10.8
Real estate and equipment rental	19.3	14.5	-7.9	4.9	10.7
Total	100	100	5.0	13.4	8.4

<sup>a</sup> Including software companies and start-ups.

<sup>b</sup> Including legal, accountancy, consultancy, architecture, engineering, advertising and public relations, photography, etc. services.

**Table 2.27**  
**Product, Employment, and Wages in Commerce and Services, 1995–99**

	Share in product		Product			Labor input			Real wage <sup>a</sup>			Relative price <sup>b</sup>		
	1995	1999	1995-98	1997	1998	1999	1997	1998	1999	1997	1998	1999	1998	1999
	(annual change, percent)													
Total	100	100	7	5	7	5	4	2	4	3	1	1	0	2
Commerce	30	26	3	4	1	4	2	2	3	2	3	-2	1	1
Services	70	74	8	5	9	6	5	3	5	4	0	2	0	3
Hotels and catering	6	5	5	8	6	3	2	3	10	1	1	0	-4	3
Business services	28	33	11	5	13	8	7	1	5	4	4	7	-1	1
Insurance, and financial institutions	23	23	7	5	8	4	9	-2	1	8	-3	3	-5	4
Education	4	4	7	6	2	3	2	20	1	0	-2	0	2	0
Health	3	3	5	1	7	8	6	3	1	0	2	-1	-4	-2
Personal and other	7	6	5	4	0	3	-3	1	6	0	2	-3	1	3

<sup>a</sup> Per employee post, deflated by CPI.

<sup>b</sup> Compared with business-sector product.

SOURCE: Central Bureau of Statistics.

fluctuations in the number of incoming tourists did not cause a crisis in the industry as a whole (see Box 2.4).

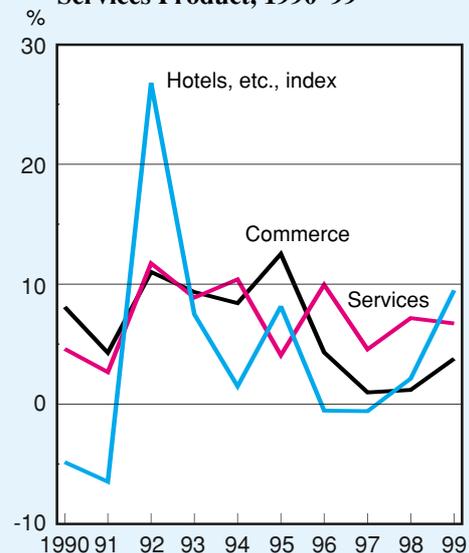
Most of the expansion of commerce and services occurred in the second half of the year.

The development of the commerce and service industries over the year, like that of the business sector as a whole, was not uniform. According to indices of industry revenues at constant prices, most of the growth occurred in the second half of the year.

However, a closer examination of labor productivity in the various components of the industry shows that in the last few years (including 1999) this has risen by an annual average of 5 percent in financial and business services. This is as could have been expected, as these services grow in line with the proliferation of activity in the high-tech, communications, and computer companies and start-ups. In the absence of detailed data it appears that in Israel, as in many other industrialized countries, technological advances sooner or later lead to a significant productivity increase in the business and software services industries as well as in communications and many other industries. Studies undertaken in the US and Europe show that the direct and indirect (exogenous) results of R&D explain about half the productivity increase per employee and three-quarters of TFP.<sup>36</sup> In other words, much of the growth and productivity of the business services, communications, and manufacturing industries in both the long and the short run is spillover from the rapid technological innovation and advances of the last two decades.

Several indicators point to the substantial expansion of banking activity in 1999, as in previous years, despite the recession. Total assets of the banking system grew by 11 percent, continuing the 10 percent rise in 1998. The real expansion of credit persisted—most of it in local-currency credit rather than foreign-currency credit in 1999—alongside the narrowing of financial margins (the overall margin fell from 2.4 percent in 1998 to 2.2 percent in 1999). As a result of the cumulative effect of the volume expansion of credit and the decline in its price (margins), the banks' net interest income rose significantly—both their total profitability (before tax) and their adjusted value added.<sup>37</sup> This rise in profitability is

**Figure 2.16**  
**Real Rise in Commerce and Services Product, 1990–99**



SOURCE: Table 2.A.40.

<sup>36</sup> See Z. Griliches (1998), *R&D and Productivity, the Economic Evidence*, Chicago, University of Chicago Press, chapter 11, The Search for R&D Spillovers.

<sup>37</sup> Profit adjusted for the average loan-loss provision for 5 years.

explained by the steep increase in stock-market turnover and in share prices during the year, which rose by a real 59 percent rise in 1999 after an 8 percent fall in 1998.

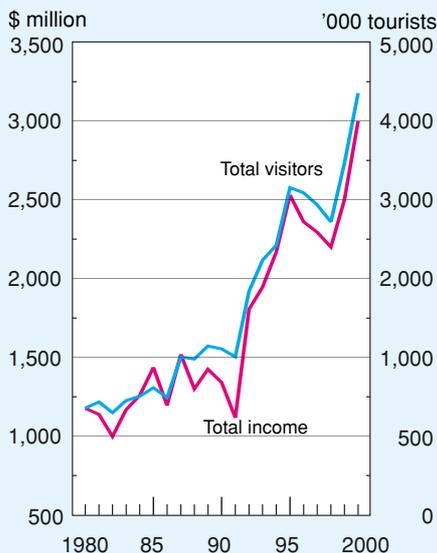
Labor input in banks dipped slightly in the last two years, as part of the process of adjustment to the era of computers and the growing expansion of on-line banking via the Internet. The number of ATMs also increased. Approximate indicators show that the banks have become more efficient in the last few years, substantially increasing their labor and total productivity. Thus, the financial institutions have adapted to the high-tech element of the business sector, which is growing rapidly in spite of the recession, and have overcome the negative effect of the decline in construction and the demand for mortgages.

The marked expansion of banking activities persisted in 1999 alongside a rise in profitability. The structural change also continued, with increased automation and fall in labor input.

**Box 2.4**  
**Incoming Tourism<sup>1</sup>**

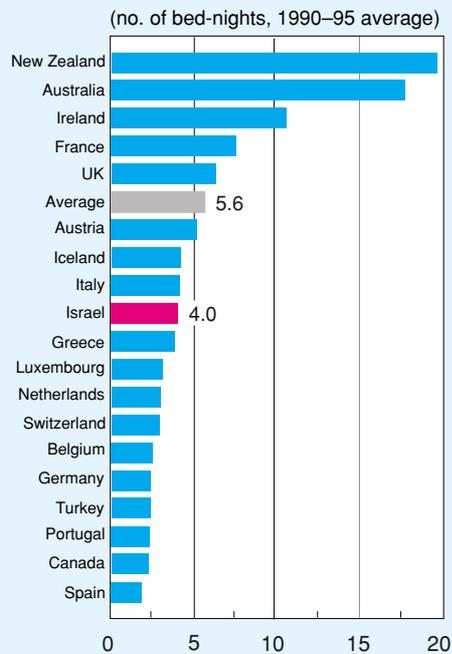
In 1997–99 incoming tourism accounted for 4 percent of business-sector product uses, about 30 percent of tourism exports, and 11 percent of total exports. As a rough estimate, it can be said that it employed 40,000 persons, accounting for about 1.9 percent of total employment. International comparisons show that in Israel tourism accounts for a relatively small share of economic activity according to most of the main parameters. The authorities prepared for a rise in tourism in

**Figure 1**  
**Export of Tourism Services and**  
**Number of Incoming Visitors,**  
**1980–99 and Forecast for 2000**

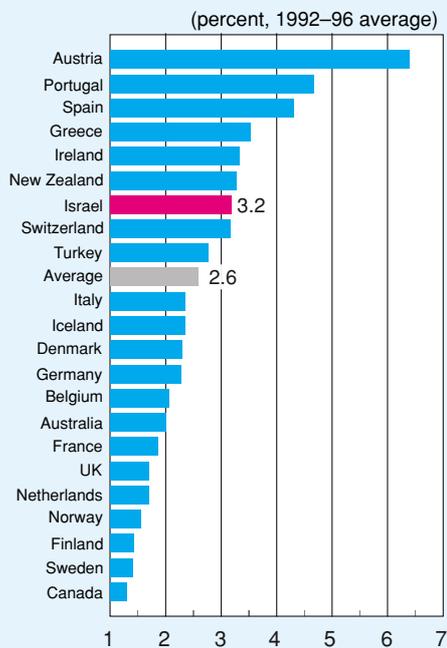


SOURCE: Israel: based on CBS data; OECD: *Tourism Policy and International Tourism in OECD Countries*, OECD Publications; OECD National Accounts, 1998 edition; *Tourism Highlights 1999*, World Tourism Organization.

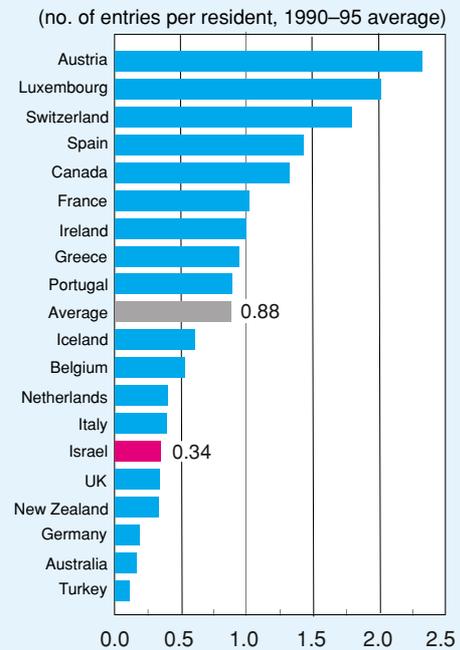
**Figure 2**  
**Tourist Bed-Nights per Visitor**



**Figure 3**  
Share in GDP of Export  
of Tourism Services



**Figure 4**  
Visitor Entries per Resident

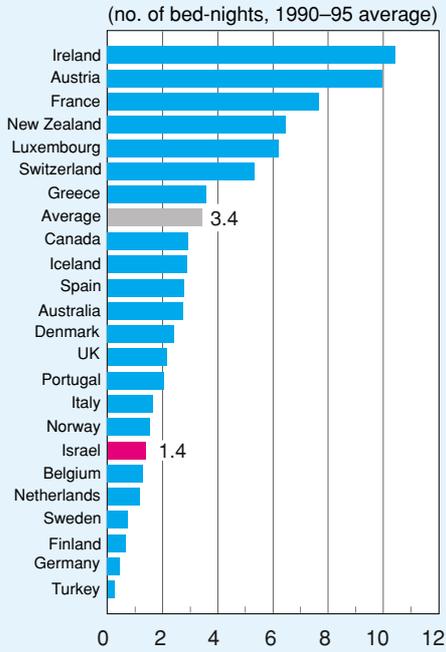


the year 2000 beyond the usual support for hotel construction. This expected increase can contribute to business-sector product growth, thereby helping the economy to emerge from the recession.

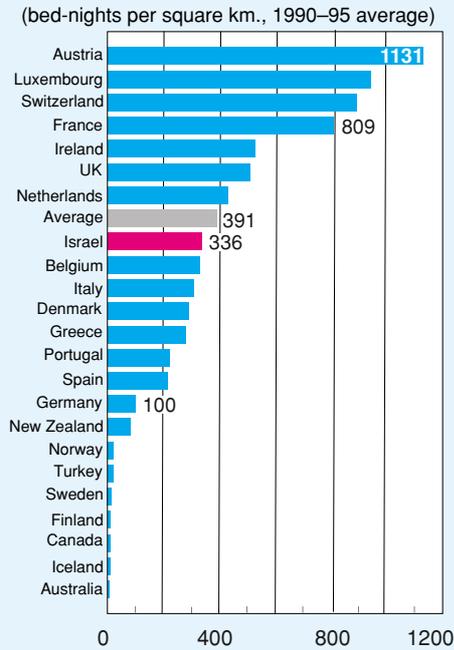
In comparison with a sample of European countries, the number of visitors to Israel, as well as their bed-nights, is low: the number of tourist entries per resident and the number of tourist bed-nights per resident are lower than the sample average by 60 percent, and the ratio of tourist bed-nights to area is 14 percent below the average. By contrast, the share of tourism exports (excluding international transport) in business-sector product uses is 26 percent above the sample average (Figures 2–5). Expenditure in Israel per tourist as a share of GDP is higher than in Europe, so that an incremental (average) tourist to Israel will cause GDP to grow by more. This is not because tourist expenditure in Israel is higher, on the contrary, in Europe tourists spend 3.5 percent as much, but the average GDP of a European country is 5.2 percent greater than that of Israel (a combination of higher per capita GDP and a larger population).

On the face of it, the comparisons appear to show that there is room for increased tourism to Israel, especially in view of the country's historical and cultural wealth and the connection between it and the major religions. However, translating this conclusion into practical terms in order to stimulate tourism requires a comprehensive view that takes into account the shortage of infra-

**Figure 5**  
Tourist Bed-Nights per Resident



**Figure 6**  
Tourist Bed-Nights per Square Kilometer



structures, which in the short term is exogenous, as well as market failures. The government should intervene only when such failures occur.

Israel should prepare for a steep increase in incoming tourism. By doing so it will be able to expand the product and employment deriving from the rise in tourism, as well as to contain the damage arising from the bad reputé that excess pressure can bring to the country, as well as from the impairment of the level of service to residents.

<sup>1</sup> The assessments in this section are updated to the end of 1999.