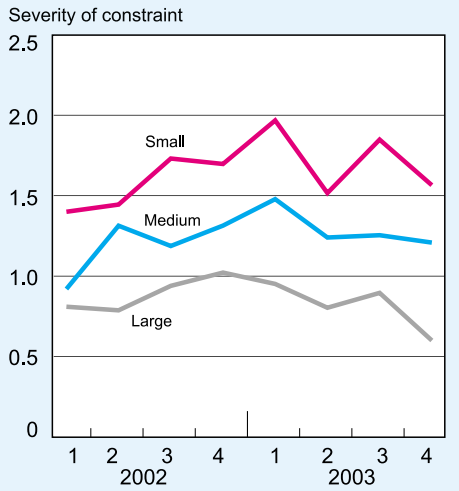
Figure 1.36
Financing Difficulty Constraint in Manufacturing Firms, 2002 and 2003



SOURCE: Bank of Israel, Companies Survey, 2003: IV.

7. The information and communications technology (ICT) industry[61]

The ICT industry is a conglomerate of production and service industries for the electronic absorption, presentation, and transmission of communications. The industry incorporates manufacturing industries—communications equipment, supervisory, measurement and control apparatus, and electronic components—and service industries, communications, computerization and R&D services, including start-ups.

After declining in 2001–2002, the industry grew worldwide.

The state of the global industry improved in 2003, after a slowdown in 2001–2002, investment in R&D continued to rise, and penetration into households and the business sector continued. The expansion of the industry is identified as a leading cause of the rise in TFP, at least in some of the OECD countries and the US. ICT production, mainly by the high-tech industry, is characterized by international competition, and since ICT services are distinguished by a mobile work force and international investments, the industry plays an important role in the globalization process. Expenditure on ICT as a share of GDP reflects the massive investment in ICT products and services in the principal industries, e.g., by financial institutions and telephone companies. This expenditure is an important component of Israel's integration into the global economy, and accelerates the rise in productivity.

ICT production is considerable in Israel, accounting for 18.4 percent of its business-sector product in 2003.

ICT production in Israel is very large relative to other countries: it accounted for about 18.4 percent of Israel's business-sector product in 2003 (Table 1.43), compared with an average of less than 10 percent in the EU and about 11 percent in the US in 2000 (Figure 1.37).[62] On the other hand, domestic expenditure on ICT is limited because Israel is a small country, so that the share of exports in output is very great. The industry's production is biased towards the services to a greater extent than is the OECD average. In other countries where the product of the ICT industry constitutes a large part of GDP, this is biased towards manufacturing. This is the case in Sweden, Finland, Japan, and Korea. Production in Israel is biased to a great extent towards the development of new products by R&D services and start-ups, and hence the share of start-ups in the industry's product and in GDP is above the average elsewhere. Israel is a world leader in R&D, *inter alia* by virtue of its educated work force and high labor productivity.

[61] Reference to the ICT aggregate in this section does not replace the reference to the components of ICT in the principal industries as customarily defined (services, manufacturing, communications).

[62] *OECD Science, Technology and Industry Scoreboard*, 2003.

Table 1.43
The ICT Industry, Main Indicators, 1999–2003

		Computer & R&D services				
	Total	Total	Total excl. start-ups	Start-ups	Communication services	Manufacturing
Share in ICT products (current prices)						
1999	100	35	28	8	26	39
2000	100	42	23	19	19	39
2001	100	44	28	16	20	36
2002	100	40	30	9	22	38
2003	100	36	29	7	27	37
Share in business-sector products (current prices)						
1999	15.6	5.5	4.3	1.2	4.0	6.1
2000	19.5	8.2	4.5	3.8	3.7	7.6
2001	19.5	8.6	5.5	3.0	3.9	7.0
2002	18.5	7.4	5.6	1.7	4.1	7.0
2003	18.4	6.6	5.4	1.2	4.9	6.9
Contribution to rise in business-sector product (1995 prices, percent)						
1999	1.3	0.7	0.5	0.2	0.0	0.5
2000	5.0	1.9	0.2	1.8	0.0	3.1
2001	–1.5	–0.3	0.4	–0.7	0.2	–1.3
2002	–1.3	–0.5	0.3	–0.8	0.1	–0.9
2003	0.9	–0.2	0.1	–0.3	1.0	0.2
Change in producer prices (percent)						
1999	11.9	19.7	19.7	19.7	2.0	9.4
2000	5.2	10.6	10.6	10.6	4.8	–5.1
2001	5.1	7.8	7.8	7.8	0.1	3.6
2002	0.8	–6.6	–6.6	–6.6	2.4	10.3
2003	–3.2	–4.8	–4.8	–4.8	2.5	–1.3

SOURCE:Based on Central Bureau of Statistics data.

ICT production

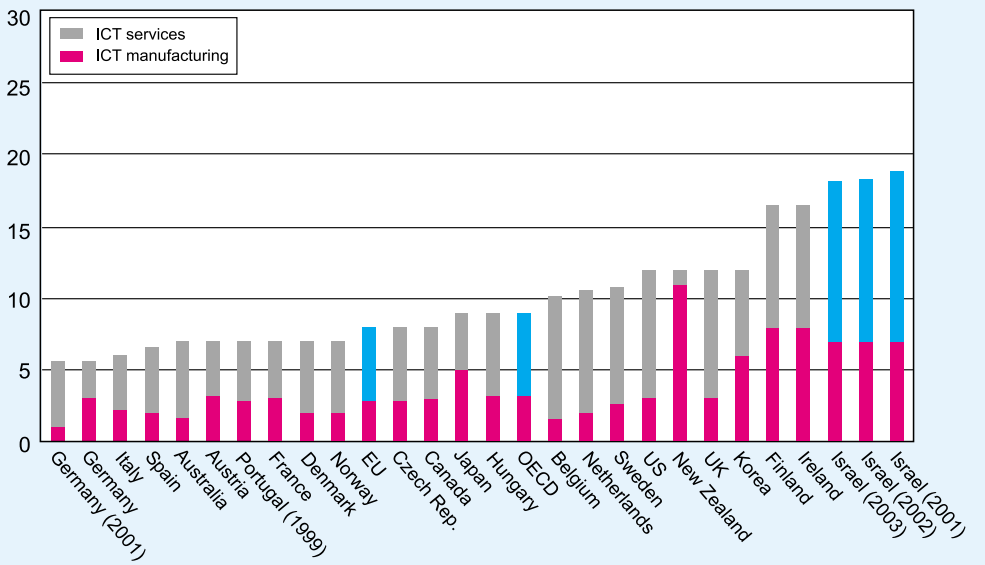
The product of Israel's ICT industry rose by 5.3 percent in 2003.

The product of Israel's ICT industry rose by 5.3 percent in 2003, after plummeting in 2001–2002. Exports remained unchanged, compared with a notable decline in 2001–2002 (Table 1.44). There are indications from other countries that the recovery there is more marked.[63] Investment in the industry was slightly below its 2002 level, though it rose steadily throughout 2003. The number of persons employed in the industry rose slightly, compared with a steep fall in 2002.

The product of the industry appears to have risen by less in Israel than elsewhere, because of special composition of its ICT industry—bias towards development of new products, generally by start-ups. The demand for new ICT products plunged in the last

[63] See section on manufacturing, above.

Figure 1.37
Share of ICT in Business-Sector Product, International Comparison, 2000



SOURCE: Israel, based on Central Bureau of Statistics data; OECD, Science, Technology and Industry Scoreboard, 2003.

two years, because of the bursting of the high-tech bubble in the US, and this is one of the reasons for the 25 percent contraction in the product of start-ups in Israel in 2003, further to its 55 percent decline in 2001–2002. Deducting start-ups, the product of the ICT industry in Israel rose by 7.5 percent in 2003, after falling by 2.8 percent in 2002 and 4.3 percent in 2001 (Table 1.44). Another possible reason for the more moderate rise in the product of Israel's ICT industry is the growing competition from the developing countries.[64] The focus on start-ups illustrated the risk of specialization: Israel benefited from the boom in the industry in 1999–2000 but was exposed to particularly extensive damage when the global high-tech bubble burst.

The product of start-ups in Israel contracted by 25 percent in 2003.

The ICT industry (including start-ups) relies on raising capital from nonbank sources. Capital raising began to recover in the course of 2003, after falling sharply in 2001–2002 (Table 1.45), although the annual total was 11 percent lower than in 2002. During 2003 capital raised by Israel's ICT companies rallied to a greater extent than in their counterparts abroad, beginning earlier in Israel than in the EU or the US.[65] No clear-cut change was evident in 2003 in the by-industry composition of capital raised (Figure 1.38). For a more detailed analysis of the various ICT industries, see the sections above on Commerce, the Services, and Communications.

Capital raising began to recover in the course of 2003.

[64] See section on manufacturing, above.
[65] EVCA Quarterly Activity Indicator, Q3 2003; National Venture Capital Association (NVCA).

Table 1.44
The ICT Industry, Product, Employment and Exports, 1999–2003

		Computer & R&D services				
	Total	Total	Total excl. start-ups	Start-ups	Communication services	Manufacturing
Change in product (current 1995 prices, percent)						
1999	8.5	21.6	20.2	27	0	8
2000	33.8	52.6	6.0	221	–1	47
2001	–7.2	–5.7	11.8	–27	4	–12
2002	–6.5	–8.2	8.5	–39	2	–10
2003	5.3	–4.0	2.7	–25	20	2
2003 (product, NIS million, current prices)	50,986	18,262	14,908	3,353	13,679	19,046
Employment (current prices, percent)						
1999	11.4		11.4		17.4	2
2000	26.9		40.7		31.6	11
2001	5.5		7.8		9.7	1
2002	–2.7		–5.5		10.6	–6
2003	0.6		2.3		2.6	–3
2003 (Employment, ‘000s)	158.5		74.0		32.1	52.4
Exports (current prices, percent)						
1999	13.8		11.9		–10.5	17.0
2000	58.5		82.1		–9.4	57.7
2001	–21.6		–20.2		–27.8	–21.7
2002	–5.8		6.1		–16.9	–9.0
2003	0.0		4.9		–12.4	–1.3
2003 ($ million, current prices)	10,180		3,794		112	6,274

SOURCE: Based on Central Bureau of Statistics data.

Table 1.45
Issues by High-Tech Companies, 1997–2003

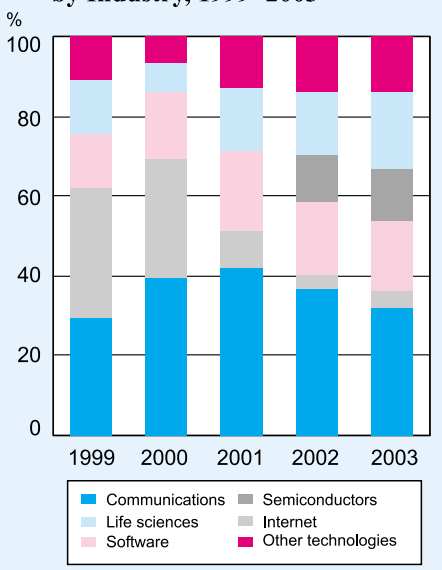
($ million)

	1997	1998	1999	2000	2001	2002	2003
Israeli and foreign venture-capital funds	430	600	1,012	3,092	1,985	1,134	1,011
Stock-exchange issues by companies backed by venture-capital funds	292	160	1,176	1,713	83	0	0

[a] For 1997–2000, including issues involving at least one Israeli venture-capital fund; for 2001–2002 also including issues without the participation of an Israeli venture-capital fund.

SOURCE: IVC Research Center.

Figure 1.38
Investment by Venture Capital Funds in ICT[a] Industries, by Industry, 1999–2003



[a] Information and Communications Technology.
SOURCE: IVC Research Center.

Government assistance for start-ups

In common with the rest of the world, Israel supports the establishment of seed companies. Since the private sector tended to invest in more established technologies in 2001 and 2002, there was a sharp drop in the pace and extent of investment in start-ups in those years (only 2 percent a year, compared with 10 percent in 2000 (Figure 1.39). In consequence, the government saw fit to provide incentives for investment in these firms, most of whose activity consists of R&D and whose role in stimulating growth is significant. For this purpose a 'Seed Fund' was established at the end of 2002, in the framework of the aid extended by the Chief Scientist. The purpose of the fund is to provide investors with an incentive by sharing risk at the initial investment stage in return for shares, to an amount not exceeding NIS 5 million per investment. The model resembles that of private investment in start-ups, but the government fund gives the investor the option to buy the shares owned by the fund.

The fund's budget in 2003 was NIS 25 million, the full amount was disbursed, and there are commitments to invest another NIS 25 million in 2004. The Seed Fund played a role in the initial stage of over 50 percent of the investments made in the first three quarters of 2003. During that period venture capital funds invested in 23 start-ups, amounting to $ 48 million (according to IVC Research Center figures)—a marked increase over 2002—and the Seed Fund participated in the investment in twelve of these.

The number of persons employed in the ICT industry rose by 0.6 percent, and the nominal wage dipped by 3.3 percent.

The number of persons employed in the industry rose by 0.6 percent, compared with a 2.7 percent decline in 2002. Employment in computerization and R&D services and in communications services increased, but fell in manufacturing. The process of wage adjustment in the industry continued with renewed vigor in 2003; the nominal wage declined by 3.3 percent, further to its 4.3 percent contraction in 2002, due to the excess supply of workers in the industry. There was a notable fall in wages in ICT services, particularly in computer and R&D services, because of the dip in labor productivity in them, while in manufacturing both labor productivity and wages rose.