Chapter 6
The General Government, Its Activity and Financing

- This year the government amended the deficit ceiling, allowing it to rise following the steep drop in tax revenues due to the economic slowdown. In other words, it enabled the 'automatic stabilizers' to operate.[1]
- As a result of the reduction of the debt/GDP ratio between 2003 and 2008 and the more moderate impact of the economic crisis in Israel than elsewhere, the increase in the deficit was not accompanied by a rise in Israel's relative risk or in the interest rate on the public sector debt. Hence, in contrast with the crisis of 2001–03, this time the government did not have to deploy a policy of restraint during the crisis.
- The moderate nature of fiscal policy in Israel compared with the aggressive counter-cyclical policy which characterized the developed countries, improved Israel's relative situation as regards the public sector deficit, and especially as regards the debt/GDP ratio. Consequently, fewer long-term effects on fiscal policy are expected in Israel than in the developed countries.
- In addition to reflecting the operation of the automatic stabilizers, the large public sector deficit this year also expresses the lagged impact of the reduction of tax rates in previous years.
- The elasticity of tax receipts to GDP in Israel during the economic crisis was far higher than its long-term level; this was mainly due to the structural changes arising from the Bachar reform, which served to increase corporate tax receipts from the financial sector.
- The low interest rates in 2009 together with the large amount of debt that was rolled over have reduced expected interest payments in the next few years by NIS 3 billion a year relative to the forecasts at the beginning of the crisis.
- The existing path of the deficit ceiling, together with the new expenditure rule adopted by the government, constitute an ambitious track which could require significant adjustments on either the expenditure or the taxation side unless the economy shifts to a path of accelerated economic expansion.
- The government has recently adopted a long-term plan for extensive investment in the transportation infrastructure. Past experience in Israel and abroad has shown that plans of this kind are characterized by a marked increase in costs relative to the initial estimates, as well as by significant delays in completing the projects.
- The development of public sector wages in the last two decades has been in line with the development of per capita GDP; employment, however, reacted acyclically.

[1] The concept 'automatic stabilizers' reflects the fact that tax revenues change in the same direction as GDP, while government expenditure changes in the opposite direction (mainly because of the behavior of unemployment and consequently government benefits). Hence, the deficit expands during a recession and contracts at a time of economic growth, even if there is no deliberate change in fiscal policy.

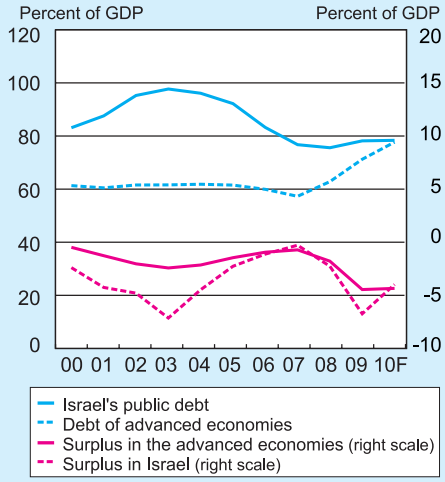
1. FISCAL POLICY

The government's fiscal policy in recent years has enabled it to implement a acyclic policy this year and has helped enable the Bank of Israel to carry out an aggressively expansionary monetary policy.

The global economic crisis affected activity in Israel to a lesser extent than in the developed countries (see Chapter 2), largely because in Israel it was not accompanied by a financial crisis (see Chapter 4). At the same time, the robustness of the economy was also due to the improvement in the fiscal situation in recent years. Fiscal policy, and the ongoing reduction of the public debt/GDP ratio in particular, enabled the government to conduct a acyclic policy this year,[2] i.e., to allow the automatic stabilizers to operate while departing from the existing fiscal rules—the deficit and expenditure ceilings. Fiscal credibility helped the Bank of Israel to adopt the exceptional monetary expansion that was made necessary by the deep global crisis. This was in contrast to the downturn at the beginning of the decade, when the Bank of Israel had to adopt a policy of restraint because of large public sector deficits and a debt/GDP ratio that soared to 100 percent of GDP and expressed itself in a rise in the long-term interest rate.

Since Israel is a small, open economy it can rely indirectly on expansionary policy worldwide. Consequently, and also thanks to the relatively moderate nature of the adverse impact on it, Israel did not have to resort to a fiscal stimulus. In this it contrasted with other developed countries—including the US, the UK, and Japan—which expanded expenditure to an exceptional extent in order to check the deterioration. Furthermore, Israel did not enter a 'recessionary spiral' resulting from a decline in inflation expectations, which serves to raise the real interest rate even when the nominal interest rate declines—a process which may cause the central bank to undergo a 'liquidity crisis' and require assistance from policy in order to stimulate economic activity. Thus, Israel's government coped with the crisis by a acyclic policy, namely, a deliberate one percent increase in public sector expenditure in 2009 and 2010, financed by means of a commensurate intentional rise in tax rates. The developed countries, by contrast, earmarked an average of three and

Figure 6.1
The Gross Public debt and the General Government Surplus, Israel and the Advanced Economies,[a] 2000-11



[a] Arithmetic average of the advanced economies.
SOURCE: Based on IMF World Economic Outlook, November 2009.

[2] Short-term fiscal policy is generally divided into three main categories: pro-cyclical policy, which is intended to reduce the public deficit during a recession or increase it during prosperity while fully or partly offsetting the action of the automatic stabilizers; acyclic policy, which enables the automatic stabilizers to act without additional intervention; counter-cyclical policy, which increases the public deficit during a recession or reduces it when expansion exceeds the action of the automatic stabilizers.

a half percent of their GDP for the expansion of expenditure without a compensatory tax hike.

The expansion of the deficit this year and the slowing of the rate of growth have led to an increase in the debt/GDP ratio in Israel to 79.4 percent, which represents a small increase relative to other developed countries.

The expansion of the deficit in 2009 and the moderation of the economic growth rate increased Israel's debt/GDP ratio to 79.4 percent of GDP. The difference between the acyclical policy of Israel's government and the aggressive counter-cyclical policy that has characterized the developed countries has spared Israel some of the side-effects with which those countries will have to contend. In the last few years Israel has had a larger debt and deficit than the average in the developed countries, but this trend is expected to contract as of 2009 (Figure 6.1 and Table 6.1), despite the sharp rise in Israel's deficit this year. This is because Israel's debt is not expected to continue expanding, while those of the developed countries will go on rising, at least until 2014.[3] The improvement in Israel's relative situation as regards the public sector debt/GDP ratio, which is also an important indicator used in determining a country's credit rating, should reduce the cost of borrowing for Israel's government and firms in relation to other countries.[4] This will make Israel's economy more competitive, and in the longer run will lead to a reduction in interest payments, freeing up resources for the government's current expenditure on improving its services.[5] Opting for a

Table 6.1
The Overall Deficit, and the General Government Debt Burden in Israel and OECD Countries, 2007–09

	General government deficit			Total general government debt (gross)			Government expenditure		
	2007	2009	Change	2007	2009	Change	2007	2009	Change
	(% of GDP)								
Israel[a]	**1.7**	**6.5**	**4.8**	**78.2**	**79.4**	**1.2**	**45.1**	**44.4**	**-0.7**
US	2.8	11.2	8.4	61.8	83.9	22.1	36.8	41.5	4.8
OECD average	-1.0	5.5	6.5	56.7	71.1	14.3	42.2	47.4	5.2
EU average	0.2	6.1	5.9	56.2	69.1	12.8	44.7	50.1	5.4
Average of small countries[b]	-2.5	4.7	7.1	49.4	62.0	12.6	42.8	48.6	5.8
Average of countries with large debt[c]	0.6	6.5	5.9	80.2	94.2	14.0	45.3	50.4	5.1

[a] Deficit data for Israel do not include the Bank of Israel. Deficit and expenditure data have been adjusted to conform with the generally accepted international definition..

[b] Countries with a population of less than 15 million in 2004.

[c] The average of countries whose debt in 2000 was larger than the OECD average.

SOURCE: Based on OECD Economic Outlook, 84, November 2008, and CBS data.

[3] The debt is expected to continue growing in the eurozone, Japan, the US and the UK. In only a handful of the developed countries is it expected to be less than 90 percent. The expected expansion of the deficit and the debt, which caused the credit rating of some of these countries to be downgraded, has compelled the leaders of the developed countries to present fiscal paths according to which the deficit and the debt are expected to contract, so that some of the countries are expected to increase tax rates.

[4] It is not clear whether borrowing costs will also contract in absolute terms, as governments' borrowing requirements rose steeply in the recent crisis, meaning that global interest rates are likely to increase.

[5] An IMF study from November 2009 shows, in common with other studies, that each 1 percentage-point increase in the deficit or the debt raises the government's long-term interest rate by 20 basis points and 5 basis points respectively. The flexibility of each country depends on additional parameters, such as positive dependence on a relatively high debt in the past (above 80 percent of GDP) and a large deficit (above two percent of GDP).

neutral fiscal policy, however, means that most of the burden of checking the crisis falls on monetary policy, which itself has implications for the recovery process (see Chapter 1).

The policy implemented this year differed from past years, in which the government adopted pro-cyclical fiscal policies.

The policy implemented in 2009, particularly in the sphere of public sector expenditure, was unusual: in the past[6] Israel's governments were characterized by a pro-cyclical fiscal policy. Thus, for example, in the 2001–03 recession, which Israel entered with a particularly high debt/GDP ratio, the rise in interest rates made it necessary to adopt a pro-cyclical policy during the crisis. This included a sharp cut in public sector expenditure and consumption in order to prevent a financial crisis. The importance of a counter-cyclical policy is evident primarily in times of recession, when its task is to allay its effect. In fact, developed countries, which can allow themselves to do so, tend to employ a course of that kind. Developing countries, on the other hand, which cannot allow themselves to increase their deficit, inter alia because of financing difficulties, have generally adopted a pro-cyclical policy.[7]

Prior to the crisis, Israel maintained a fiscal policy from 2002 to 2008 that involved the reduction of expenditure.

The economic crisis affected Israel against the backdrop of fiscal policy which reduced expenditure between 2002 and 2008. Interest payments fell by 2.2 percent of GDP relative to their peak in 2002. Defense consumption contracted by 2.5 percent of GDP. Civilian expenditure excluding interest was reduced by a substantial 3.6 percent of GDP, and this trend continued until 2007 (Figure 6.2). The decline in civilian consumption was greater than that in transfer payments. All these reductions combined to cut the share of expenditure in Israel's GDP relative to that of other countries. The decline in the share of non-interest civilian expenditure in GDP was less prominent than in other countries because it was smaller than the average in the developed countries at the beginning of the decade too. The tax burden contracted by 4.6 percent of GDP, 3.5 percent of GDP due to the reduction of statutory tax rates. By the end of the period—in 2009, the beginning of which was characterized by the contraction of expenditure and the end by commensurate tax cuts—the deficit was unchanged. Thus, the reduction of the debt, which cut interest payments as a share of GDP, financed the tax cuts only partially, the rest of the reduction being financed by the contraction of expenditure, including civilian expenditure. This means that during this period fiscal policy focused on reducing spending, and the decline in the debt/GDP ratio stemmed primarily from rapid economic growth and the differences in the timing of expenditure and tax cuts.

The share of civilian public expenditure without interest payments within Israel's GDP was particularly low in 2008 relative to the OECD countries.

The share of non-interest civilian public expenditure in GDP was particularly low in Israel relative to the OECD average in 2008, 33 percent compared with 40.5 percent respectively (Figure 6.4b).[8] This was mainly because between 1995 and 2008 per capita public sector civilian consumption in Israel hardly changed at all in real terms, while in the OECD countries it rose by a cumulative 26 percent on average.

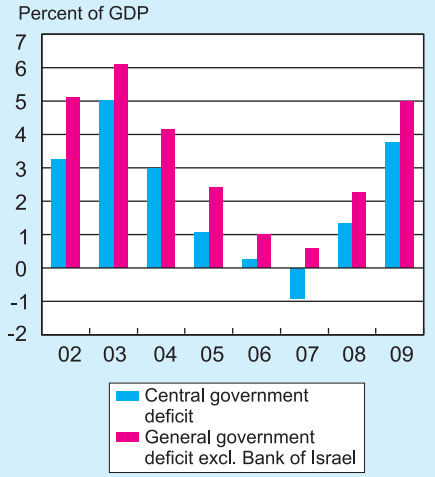
6 I. Zeira and M. Strawczynski "The Cyclical Nature of Fiscal Policy in Israel," Israel Economic Review 80 (Hebrew).

7 World Economic Outlook, October 2008.

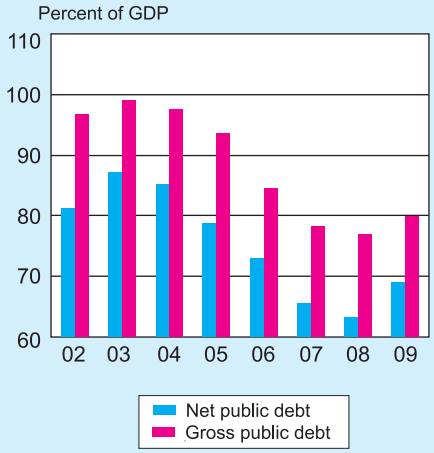
8 Source: OECD Economic Survey: Israel, January 2010.

Figure 6.2[a]

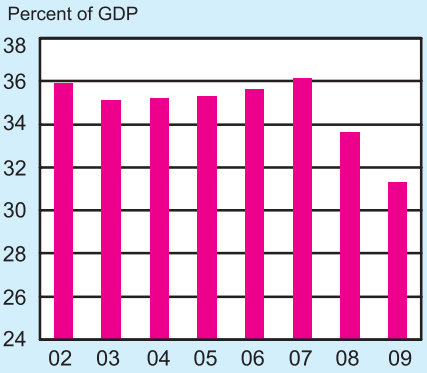
The Central Government and General Government Deficits, 2002–08



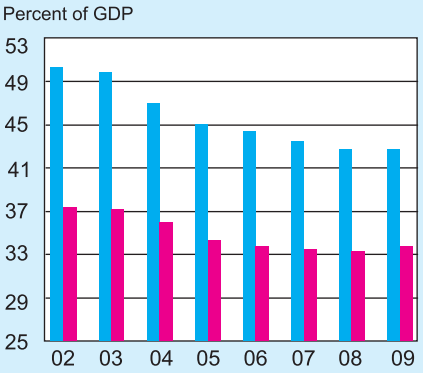
Public Debt, 2002-08



Tax Burden, 2002-08



Public Expenditure and Primary Civilian Expenditure, 2002-08



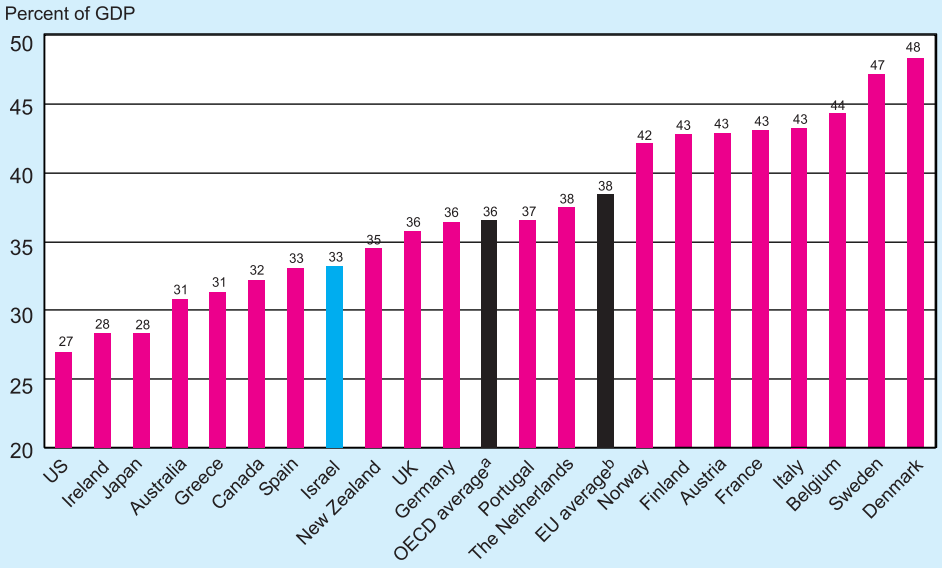
[a] In addition to tax revenues, the public sector has income of about 6 percent of GDP from grants from abroad, capital transfers from residents, depreciation and imputed pensions.

SOURCE: Based on Central Bureau of Statistics data.

The choice between the alternative policies facing the government is not an easy one: The persistence of a low rate of growth in public sector expenditure could further diminish the extent of civilian government services in Israel relative to those in the OECD countries. On the other hand, the rise in expenditure alongside the continued reduction of taxes could check the downward trend in the debt/GDP ratio. Nevertheless, the improvement in Israel's condition relative to that of other economies increases the government's degrees of freedom in choosing the policy.

The fiscal rule adopted by the government recently may help to attain the desired path of the fiscal aggregates. This rule offsets the need to maintain the level of the

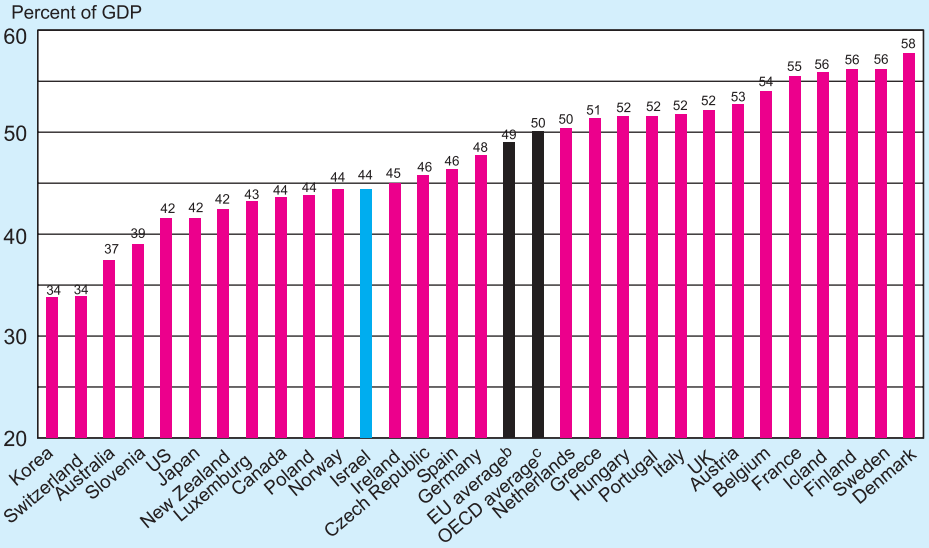
Figure 6.3
The Tax Burden in Israel and OECD Countries, 2008



[a] Arithmetic mean of all OECD countries except Turkey and Mexico.
[b] Arithmetic mean of the EU countries that are also members of the OECD.

SOURCE: Based on OECD and Central Bureau of Statistics data and OECD Revenue Statistics 2009.

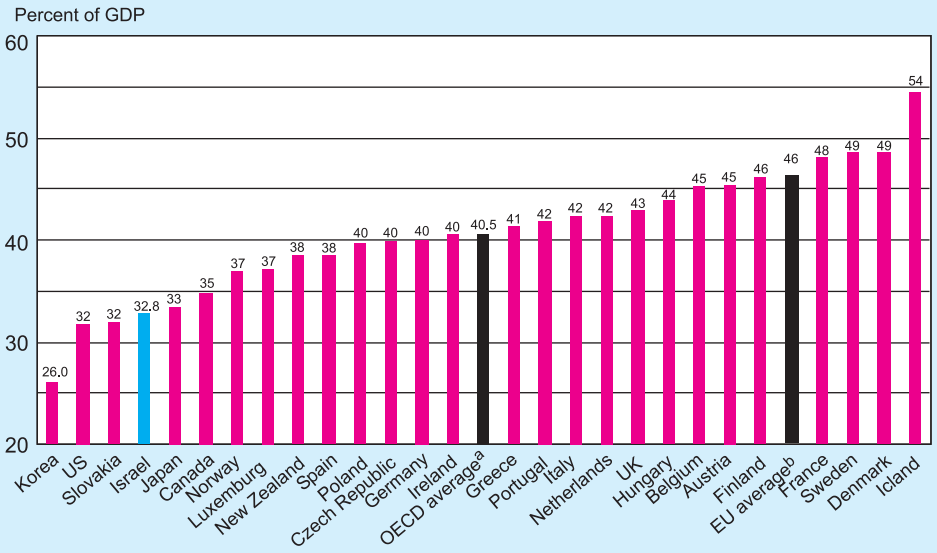
Figure 6.4a
The Share of Public Expenditure in GDP in Israel,[a] Selected Advanced Economies, and OECD and EU Averages, 2009



[a] Calculated in accordance with the international definitions.
[b] Arithmetic mean of the EU countries that are also members of the OECD.
[c] Arithmetic mean of all OECD countries except Turkey and Mexico.

SOURCE: Based on OECD and Central Bureau of Statistics data and OECD Economic Outlook 86, November 2009.

Figure 6.4b
The Tax Burden in Israel, Selected Advanced Economies, and OECD and EU Averages, 2008



[a] Arithmetic mean of all OECD countries except Turkey and Mexico.
[b] Arithmetic mean of the EU countries that are also members of the OECD
SOURCE: Based on OECD and Central Bureau of Statistics data and OECD Economic Outlook 86, November 2009.

deficit that will ensure a continued reduction in the debt/GDP ratio, on the one hand, with the need to enable government expenditure to rise in order to improve services to citizens, on the other. The application of this rule will maintain the credibility of fiscal policy, the importance of which was particularly evident in the recent crisis. The proposed path is ambitious: adhering to both the deficit target and the new increased expenditure path while continuing with the planned reduction of taxes. This will be possible only if the economy attains an accelerated growth track (see Section 7 in this chapter).

The fiscal rule adopted recently by the government may help in achieving the optimal path for fiscal aggregates; however, its implementation will only be possible if the economy is on a trajectory of accelerated growth.

2. THE OVERALL DEFICIT, AND PUBLIC SECTOR EXPENDITURE AND INCOME

The rise in the general government deficit in 2009 was due to a decline in the share of public sector income in GDP. Whereas the share of expenditure was similar to that of 2008 (Table 6.2), the overall deficit would have been even greater had it not been for the rapid rise in the GDP deflator, which led to a 5 percent increase in nominal GDP. The overall public sector deficit comprises mainly the government's deficits, together with the smaller deficits of public non-governmental organizations and the National

The majority of the public sector deficit consists of the government deficit.

Table 6.2
The Main Components of General Government Receipts and Expenditure, 2002–09

(percent of GDP)

	2002	2003	2004	2005	2006	2007	2008	2009
Total receipts	**46.1**	**43.0**	**42.9**	**42.9**	**43.3**	**43.5**	**40.8**	**38.5**
Excl. Bank of Israel	**45.4**	**43.8**	**43.0**	**42.7**	**43.5**	**43.1**	**40.5**	**37.7**
From property	2.3	0.6	1.0	1.4	0.9	1.3	1.2	1.6
Of which Receipts of Bank of Israel	0.7	-0.8	-0.2	0.2	-0.2	0.4	0.3	0.8
Total taxes	35.9	35.1	35.2	35.3	35.6	36.1	33.6	31.3
Indirect taxes on domestic production	12.9	13.0	12.9	12.9	12.4	12.4	12.3	12.2
Indirect taxes on civilian imports	3.8	3.7	4.1	4.1	3.9	4.5	4.2	3.9
Direct taxes, fees, and levies	13.4	12.4	12.4	12.5	13.8	13.7	11.6	9.9
National Insurance surplus	5.9	6.0	5.8	5.7	5.6	5.5	5.6	5.4
Grants	3.8	3.4	2.7	2.4	3.0	2.3	2.1	1.8
Other[a]	4.0	4.0	3.9	3.8	3.8	3.8	3.8	3.7
Total expenditure	**50.5**	**49.9**	**47.1**	**45.1**	**44.5**	**43.7**	**42.7**	**42.7**
Current expenditure	46.4	46.2	43.6	41.8	41.2	40.2	39.2	39.0
Domestic civilian consumption	19.3	19.0	18.5	18.0	17.6	17.7	17.7	17.6
Domestic defense consumption	6.7	6.6	6.1	5.8	5.8	5.7	5.7	5.5
Defense imports	2.2	1.7	1.5	1.6	1.7	1.5	1.2	1.0
Direct subsidies	0.7	0.9	0.7	0.7	1.1	0.8	0.8	0.8
Transfer payments on current account	12.3	12.1	11.0	10.6	10.3	10.0	10.1	10.5
Interest payments	5.0	5.9	5.6	5.0	4.7	4.6	3.7	3.6
Transfer payments on the capital account[b]	1.73	1.2	1.6	1.6	1.7	1.8	2.0	2.1
General government investments	2.5	2.5	2.0	1.7	1.6	1.7	1.6	1.5
Total general government deficit	**4.4**	**6.9**	**4.3**	**2.2**	**1.2**	**0.2**	**1.9**	**4.2**
Total general government deficit excl. Bank of Israel	**5.1**	**6.1**	**4.1**	**2.4**	**1.0**	**0.6**	**2.2**	**5.0**
Net public debt[c,d]	**81.3**	**87.1**	**85.2**	**78.7**	**73.0**	**65.6**	**63.4**	**69.0**
Gross public debt excl. Bank of Israel[d]	**96.6**	**99.1**	**97.4**	**93.5**	**84.5**	**78.2**	**76.9**	**79.4**

[a] Including transfer payments from the public on the current and capital accounts, imputed pension, depreciation, capital transfers from abroad, and transfers from abroad to National Institutions and nonprofit organizations.
[b] Including mortgage subsidy and transfers to nonprofit organizations and businesses on the capital account.
[c] At end-of-year prices.
[d] After deducting the local authorities' debt to the central government.
SOURCE: Based on Central Bureau of Statistics data.

Institutions *less* the current budget surplus of the National Insurance Institution. This year, continuing the trend of 2008, the local authorities presented almost balanced budgets, despite the cuts in the government's equalization grants.[9] The government component of the deficit was dominant in 2009, constituting a marked contrast with previous recessions, when the deficits of other institutions also expanded.

9 Nevertheless, dozens of local authorities, mainly smaller ones, have large deficits relative to the extent of their activities.

The share of taxes in GDP in Israel is very low from a historical perspective and is lower than in most of the developed countries and the average for those countries.

Most of the contraction in public sector revenue in 2009 was in tax receipts, so that the share of taxes in GDP (the tax burden) fell relatively steeply. This is a result of the lowering of tax rates in the last few years as well as of the high sensitivity of tax receipts in Israel to GDP, particularly at a time of shifts in business cycles (see Box 6.2). As a result of this elasticity the overall deficits in the last episode of rapid growth in Israel were relatively small, and the tax burden also rose (Figure 6.2), despite the cumulative reduction in statutory tax rates. The share of taxes in GDP in Israel is currently very low in an historical perspective, lower than in most of the developed countries as well as than their average (Figure 6.3). Note that the countries whose tax burden is lower than Israel's include countries with a longstanding high deficit (Japan, Greece, the US).

The share of public sector expenditure in GDP has remained similar to its level in 2008, after declining for six successive years—by a cumulative 7.8 percent of GDP. The data for 2009 express a rapid rate of increase of the GDP deflator and the steady

Table 6.3
Rates of Increase of Public Expenditure in Israel, 2002-09

(percent, deflated by implicit price index of business-sector product)

	2002	2003	2004	2005	2006	2007	2008	2009
	(rate of increase, annual average)							
Total public expenditure	**5.9**	**0.1**	**-0.9**	**1.3**	**6.5**	**3.7**	**3.3**	**5.5**
Of which Interest payments[a]	-5.2	18.7	0.6	-5.4	0.6	3.6	-16.1	5.5
Total primary public expenditure	**7.3**	**-2.0**	**-1.1**	**2.2**	**7.2**	**3.7**	**5.6**	**5.5**
Of which Current primary expenditure	6.9	-1.4	-1.3	2.7	7.1	3.1	5.5	5.2
Current primary civilian expenditure	4.7	-0.3	-0.4	2.4	6.7	3.7	6.0	7.0
Public consumption	9.1	-2.1	0.0	3.2	6.2	4.2	4.9	3.1
Public consumption excl. defense imports	7.6	-0.6	0.8	2.3	5.8	5.4	6.0	4.3
Civilian consumption	5.7	-0.6	2.2	3.0	5.2	6.2	6.0	5.1
Per capita civilian consumption	3.6	-2.3	0.4	1.2	3.4	4.3	4.1	3.2
Wage expenditure	4.3	-2.4	3.7	1.9	5.0	5.2	4.5	2.5
Purchases	7.0	0.8	-1.1	3.8	5.2	8.0	8.0	8.9
Domestic defense consumption	13.2	-0.9	-3.4	0.8	7.7	3.5	6.6	1.0
Wage expenditure	7.7	-2.7	-2.5	2.5	5.0	1.2	3.6	7.7
Transfer payments on current account	3.8	-1.3	-3.8	1.7	5.1	2.4	6.7	9.7
Per capita transfer payments on current accoun	1.7	-3.1	-5.5	-0.1	3.2	0.6	4.8	7.8
General government investment	6.8	1.3	-16.1	-7.7	2.8	9.8	-3.0	3.1
Of which Transport infrastructure	6.3	51.7	25.0	-39.6	43.4	18.1	13.1	5.6
Transfer payments on capital account	10.6	-8.0	0.8	-2.3	9.2	11.1	7.2	8.6
Change in the CPI (annual average)	7.5	7.0	4.0-	3.1	1.2	5.0	6.4	3.3

[a] The decline in interest payments in 2002 and their rise in 2003 reflect mainly the effect of changes in the rate of inflation on the CBS method of calculating the interest rate.
SOURCE: Based on Central Bureau of Statistics data.

The share of public sector expenditure in GDP remained similar to its level last year, following a continuous decline during the previous six years.

rate at which expenditure rose. In contrast with Israel, in the developed countries the average share of public sector expenditure in GDP rose by an average of 5 percent of GDP in 2009, because of both a marked increase in expenditure (Table 6.1) and the contraction of GDP, causing Israel to fall lower than in previous years on the scale of countries ranked by this indicator (Figure 6.4a). Currently the share of public sector expenditure in GDP in Israel is lower than the average in developed countries, even though interest payments and defense expenditure in Israel account for 12.5 percent of GDP, compared with an average of only 4 percent in the developed countries.

The rates of growth in civilian public sector consumption and public sector defense spending were low relative to the previous two years and their share of GDP fell this year.

The rise in public sector expenditure in 2009 expresses a sharp increase in interest payments, due to the expansion of the debt, notwithstanding the lower interest-rate environment as well as the rise in transfer payments due to both the cyclical growth of National Insurance benefits and legislative changes which increased these benefits (Figure 6.3). On the other hand, the rate at which civilian and defense public sector expenditure rose was slower than in the preceding two years, and their share in GDP contracted.[10]

3. TAX RECEIPTS

The sharp drop in tax revenues this year was caused by the slowdown in economic activity and reflects the higher-than-unity short-run elasticity of tax revenues.

The share of tax receipts in GDP—the tax burden—fell by 2.3 percentage points in 2009, continuing the marked contraction evident in 2008 (Figure 6.2 and Appendix Table 6.A.11). This decline reflects a higher than unitary short-term elasticity of tax receipts relative to economic activity. The contraction in tax receipts this year derives from the decline in economic activity, while the changes in the statutory tax rates contributed only marginally, because the reduction of direct tax rates at the beginning of the year was almost completely offset by the rise in tax rates in the framework of the approval of the budget during the course of the year. The rate of VAT receipts in Israel relative to their potential (compliance) was also found to be cyclical,[11] contributing to the rise in the elasticity of tax receipts to GDP. For an analysis of the elasticity of tax revenues to GDP in Israel in international terms, see Box 6.2.

Overall, tax revenues fell relative to 2008 at a real rate of 6.6 percent.

All in all, tax receipts were down from 2008 by a real 6.6 percent, and stood at NIS 178.7 billion. The real decline in direct tax receipts amounted to 9 percent, continuing a similar drop in 2008. Revenues continued to fall in the first half of the year, stabilizing in Q3 and rising in Q4 (Figure 6.5). Adjusting for legislative changes, direct tax revenues fell by a real 6.8 percent.

This year, the decline in revenues from the corporate income tax was prominent, as it was worldwide

The decline in corporate tax receipts was particularly prominent, and this is a feature which is characteristic of periods of economic downturn (in Israel as in the rest of the world). These tax receipts declined by 19 percent in real terms in 2009, in the wake of the contraction of profits, completing a real 4 percent drop from their peak in 2006,

[10] Public sector expenditure equals public sector consumption plus interest and transfer payments.

[11] Net tax receipts divided by the rate of VAT in the same quarter relative to private consumption, see J. Brondolo (2009), "Collecting Taxes During an Economic Crisis: Challenges and Policy Options," IMF staff position paper 09/17/

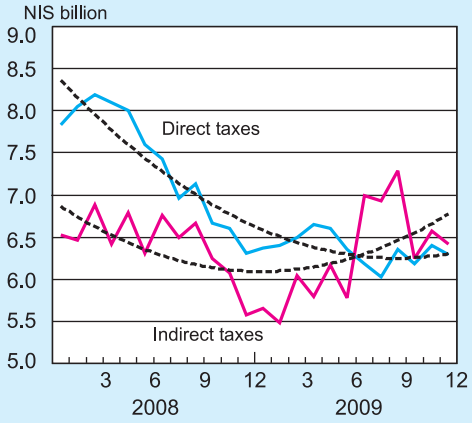
when they constituted 1.9 percentage points more of GDP than is currently the case (4.2 percent of GDP vis-à-vis 2.3 percent in 2009). Although corporate tax receipts constitute a relatively small proportion of total tax receipts, they have a dominant effect on the short-term path of the tax burden because the markedly cyclical nature of these receipts significantly intensifies the cyclical character of the tax burden—a phenomenon which was seen in many of the developed countries in 2009. Income-tax receipts also fell this year, and this is consistent with the additional reduction of tax rates on labor at the beginning of the year, as well as with the fall in the average real wage. Tax receipts from small businesses also dipped in 2009.

Indirect tax revenues (in real terms) were stable as a whole this year relative to 2008 (Figure 6.7, Appendix Table 6.A.4), as was the case in the preceding year. This expresses a fall in revenues in 2009:I, continuing the decline evident in 2008:III, when the crisis began, and an increase later in the year, once the recovery had begun and in the wake of the hike in VAT in July. The relatively exceptional rise in indirect tax receipts in 2009:III is explained by the fact that vehicle purchases were brought forward prior to the expected change in legislation (ecological taxation). Total indirect tax receipts on domestic production were up by 2.1 percent in real terms over 2008, while those on civilian imports fell by 4.2 percent (Appendix Table 6.A.4). Adjusted for the legislative changes, total indirect tax receipts fell by 5.7 percent in real terms.

The government's tax revenues were NIS 4.8 billion higher in 2009 than forecast in the budget. Some 70 percent of the difference stemmed from the unexpected increase in indirect tax receipts. The gap between predicted and actual revenues is explained by the difference between predicted and actual GDP growth (1 percent and 0.5 percent respectively). This average attests once again to the uncertain nature of forecasts about taxes mainly because of the difficulty in foreseeing the macroeconomic variables affecting revenues, among them economic growth rates, even when the economic connections between these variables and revenues are known.[12] The year 2009 was exceptional in that tax revenues fell even below the long-term relation between them and macroeconomic variables, as estimated in the past, and this was expressed in the larger downward divergence of the revenues from the forecast.

The government's tax revenues in 2009 were NIS 4.8 billion higher than the forecast in the budget.

Figure 6.5
Direct and Indirect Tax Revenues in the Last Two Years, 3-Month Average, 2008-09 (at constant 2008 prices)



SOURCE: Based on budget data.

[12] A. Brender and G. Navon (2010). "Predicting Government Tax Revenues and an Analyzing Forecast Uncertainty," Israel Economic review,, Vol. 7, No. 2.

The continued reduction of direct tax rates in 2009—in addition to the cuts implemented in the last three years—was part of the government's long-term program of previous years, in addition to those made when it transpired that tax receipts were higher than expected. The statutory tax cuts at the beginning of the year included the reduction of corporate tax and income tax, while the increases in the middle of the year included a VAT hike, the raising of the ceiling on exemption from National Insurance payments, and increased taxation on oil and cigarettes (the latter imposed on a temporary basis to conclude at the end of 2010). At the end of 2009 the weighted statutory tax rate[13] was almost the same as it had been in 2008, although as an annual average it was down by 0.9 percentage points, and in the last seven years it has fallen by a cumulative 6 percentage points—a significant decline which may have contributed to Israel's economic activity in that period. Note that according to the legislation approved this year, the weighted statutory tax rate is set to fall by another 4 percentage points by 2016, a path that is not consistent with a decline in the share of the public sector debt in GDP together with a rise in per capita public sector civilian consumption (see Section 7 in this chapter).

Moreover, since previous commitments to reduce taxes cast doubts on the reduction of the debt, the benefit of such a move will be offset—and possibly even reversed —because of the rise in Israel's country risk and its possible effect on the cost of borrowing to firms, as well as on investments, and private consumption.

The link between the share of tax revenues in GDP (the tax burden) and the statutory tax rate as calculated from 1986 to 2009[14] can be seen in Figure 6.6. The analysis shows the following:

During the last twenty-five years, the share of tax revenues in GDP and the level of statutory tax rates have had a similar downward trend.

1. The two indicators are very closely allied, and both have been declining rapidly in the last twenty-five years.

2. The tax burden is cyclical (tax receipts are highly sensitive to changes in the economic growth rate), and hence the gap between the two indicators is cyclical (the tax rate is counter-cyclical to some extent).

3. Over time the tax burden and tax rates have declined at similar rates: the former fell by a cumulative 16 percentage points during the period reviewed and the former by 15 percentage points, i.e., the permanent reduction of the tax rate is expected to ease the tax burden by a similar rate, and in effect to lessen the government's share of GDP.

4. Since 2003 there has been a steep drop in the statutory tax rate that was not accompanied by a concurrent easing of the tax burden; this was due to the cyclical nature of the latter, reflecting the closing of the output gap and sharp increases in the capital market. Alongside the decline in GDP growth rates, the tax burden plummeted,

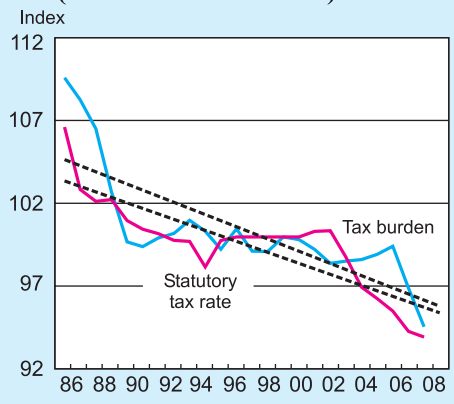
[13] For an explanation of the way the index is calculated, see K. Flug and M. Strawczynski (2007). "Continued Growth and Macroeconomic Policy in Israel," Bank of Israel Economic Review, 80 (Hebrew).

[14] In theoretical terms the long-term average of the two indicators should be very similar, almost identical, $\frac{T}{Y} \cong \frac{t \cdot Y}{Y} = t$.

converging with the downward pace of the statutory tax rate, correcting its increase as a result of the financial upsurge between 2003 and 2007.

A seminal component of the downward path of tax rates in recent years has been the reduction of income tax. The tax reform introduced in 2003 significantly cut tax rates in most tax brackets. The reform at the end of 2005 made further reductions, and the reform of 2009 is expected to continue that trend, bringing about an additional reduction in direct taxes by 2016. In addition, tax rates have been reduced from time to time over the years, when revenues exceeded their expected level. As a result of the tax cuts that have already been implemented income tax is lower in Israel than in most of the developed countries at almost every income level (Appendix Table 6.A.13),[15] and the gap is expected to continue to widen once the planned reductions are made.

Figure 6.6
The Tax Burden and the Statutory Tax Rate, 1986-2008
(both indices: 2002=100)



SOURCE: Bank of Israel.

The percentage of taxes within total wages in Israel is lower than in most of the developed countries at almost every wage level and as tax rates continue to decline in Israel this gap is expected to widen.

4. THE NATIONAL BUDGET AND THE DEFICIT TARGET

In October 2008 a general election was called in Israel and the government became a transitional one. The elections were held only in February 2009, and in April the new government was sworn in, so that the approval of the national budget was delayed. Consequently, whereas governments in most advanced economies introduced extensive stimulus and support packages in order to alleviate the adverse effect of the economic crisis on the business sector, until July 2009 Israel's government operated on the basis of a budget based on that of 2008. Moreover, in 2009:I there was marked under-utilization (failure to make full use of the budget proportionate to the period) of the government's current expenditure because of high pre-set debt servicing, even though at the beginning of the year, near the time of the collapse of the Lehman Brothers bank, the extent of the global crisis seemed far greater: Israel's GDP contracted, unemployment rose, and private consumption fell, as was the case in most countries. Israel's government coped with these developments primarily by introducing measures intended to boost public confidence—providing guarantees for various financial entities, including extending a limited safety net to protect pension savings from being eroded, and establishing investment funds in order to extend

While governments of most advanced economies approved large-scale stimulus and assistance packages in order to reduce the effect of the crisis in the business sector, the government in Israel worked on the basis of the previous budget until July 2009 as a result of the elections.

[15] With the exception of the bracket between NIS 38,000 and NIS 80,000, where the marginal tax rate in Israel was the highest among the advanced economies until 2011. Some 3 percent of tax-payers are to be found in this bracket.

credit to entities which had borrowed on the capital market and were encountering difficulties in rolling over debt. Monetary policy, on the other hand, was particularly aggressive.

In retrospect, it is possible that the passive fiscal policy that was forced on the government during the first half of the year had some major advantages.

In retrospect, the passive fiscal policy which was imposed on the government in the first half of the year may have had important advantages because Israel's economy was affected to a relatively moderate extent, largely due to the short duration of the crisis and taking the expansionary monetary policy into consideration. A pro-cyclical policy could have exacerbated the recession, whereas a counter-cyclical policy might have served to increase the national debt and the deficit—something which was not necessary in light of the moderate impact of the crisis on Israel's economy and the success of monetary policy in coping with it. The effect of fiscal policy is slower than that of monetary policy, as it is difficult to implement changes in it, especially to cancel it and backtrack.

For the first time in Israel and worldwide, a two-year budget was approved for 2009 and 2010

As stated, it was only in July 2009 that the government budget was approved by the Knesset. For the first time in Israel, and uniquely in Israel, the budget was for a period of two years, i.e., 2009 and 2010. The advantage of having a two-year budget lies in the increased certainty regarding the government's plans, making it easier for ministries, firms, and individuals to plan activities. The disadvantage of a budget of this kind lies in the restricted ability to alter it in accordance with circumstances: the budget is planned and approved on the basis of certain assumptions, among them the expected GDP growth path,[16] and these may change. However, since the rate of change of the composition of expenditure in Israel is in any case very low by international standards,[17] this limitation is not very important.

On the expenditure side, the government decided on a one-time increase for 2009 and 2010 of 1.35 percent beyond the legal limit on expenditure increases.

On the expenditure side, the government decided on a one-off 1.35 percent increase in its expenditure in 2009 and 2010 beyond the legal limit on this increase, which was 1.7 percent in real terms. This addition of NIS 3.2 billion for each year was intended primarily to augment expenditure deriving from the Economic Program.[18] Adjusted for the increment, government expenditure from 2011 will grow by a real annual rate of 1.7 percent. The approval of the budget also included a 'package deal' agreement between the government and the Federation of Labor (Histadrut), under which convalescence payments in the civil service would be halved in both 2009 and 2010. The government undertook to divert the amount thus saved, some NIS 2 million, to a fund intended to assist firms in difficulties, especially in the periphery. While no use would be made of this fund in 2009, it would be used to reinforce the mechanisms designed to protect employees in the business sector (see Chapter 5).

[16] For example, when the budget was approved the forecast for GDP growth in 2010 was 1.5 percent, while today the forecast is 3.5 percent. This could lead to an increase in tax revenues and a deficit that is lower than the ceiling. The forecast for GDP growth in 2009 was also unduly pessimistic, but this problem can also occur with a one-year budget. The predicted inflation rate was also lower than the actual rate, and it was twice as rapid in 2009 as the rate forecast when the budget was approved.

[17] Adi Brender and Alan Drazen (2009), "Why is Economic Policy Different in New Democracies? Affecting Attitudes about Democracy," NBER 13457.

[18] The economic program presented by the Ministry of Finance in April and intended to check the recession and renew GDP growth in Israel.

Fearing large losses of tax revenues due to the decline in economic activity in Israel, and in order to avoid departing from the deficit of 6 percent of GDP in 2009, the government decided to introduce several statutory tax increases—the temporary 1 percentage-point increase of VAT to 16.5 percent, and the rise in the tax ceiling for paying National Insurance contributions. These were supposed to remain in effect until the end of 2010, and the incremental revenue from them was estimated at NIS 4.2 billion.[19] The government also increased taxes on cigarettes (NIS 0.7 billion), fuel (NIS 1 billion), and vehicle purchases (NIS 0.4 billion), and deferred the implementation of the reform involving the reduction of direct taxes on individuals and firms. Thus, the increase in taxes is expected to finance the incremental one-off expenditure—expressing, as stated, the government's acyclic policy.

Fearing a large decline in tax revenues as a result of the slowdown in economic activity in Israel, the government decided to increase a number of statutory tax rates.

The government's acyclic policy was also expressed in the departure from the path determined in the Deficit Reduction Law. The government set a new path for limiting deficits, determining them at 6 percent of GDP in 2009 and 5.5 percent in 2010, with a gradual reduction to one percent by 2014 and subsequently. This reflects the effect of the automatic stabilizers, which in Israel operate via the channel of reduced tax revenues.

The government's acyclic policy was manifested in a deviation from the path specified in the Deficit Reduction Law.

The relatively limited extent to which designated expenditure was increased, by less than 0.5 percent of GDP a year in 2009 and 2010, reflected the government's reluctance to adopt relatively far-reaching measures, and most of the steps that were implemented were relatively restricted (see Chapter 5 for the government's intervention in the labor market). In 2009 the government did not expand the extent of the transition and employee-training programs (e.g., the 'Visions for Employment' program), postponed the extension of the earned income tax credits to the entire economy, and even made significant cuts in the equalization grants to regional authorities and municipalities. On the other hand, the government increased credit to small and medium-sized businesses by augmenting the fund intended for this purpose. It authorized an annual increment for expenditure on child care by working mothers, including the subsidization of day-care centers (although this increment is due to be given only in 2010). It increased the budget of the Investment Center for 2009, including the budget for R&D, by several hundred million NIS, including the allocation of NIS 700 million under the Encouragement of Capital Investments Law,[20] although most of the latter was not used because of the failure to approve the map of preference areas.[21] It slightly eased the criteria of eligibility for receiving unemployment benefit and also increased the budget for infrastructure development, including in the periphery (for details on the

The relatively limited increase in designated government expenditures reflected the unwillingness to adopt far-reaching measures and most of the measures that were implemented were on a relatively small scale.

[19] In January 2010 the government reduced VAT to 16 percent.

[20] It was found that the productivity of capital deriving from expansion and establishment grants is no less than that of unsubsidized capital, so that the grants do not distort the allocation of capital. It was also found, however, that the expansion grants do not contribute to increased investment and employment; G. Navon and R. Frisch (2009), "The Effect of the Encouragement of Capital Investments Law on Activity in GDP, Employment, and Investment: an Empirical Analysis of Microeconomic Data," Discussion Paper Series, 2009.12, Bank of Israel (Hebrew).

[21] The map was approved in December 2009.

expansion of the infrastructure, see the relevant section in Chapter 2). In addition, in order to contend with the crisis, the government expanded its guarantees by NIS 20 billion, constituting the transfer of risk from the business sector to the government. In effect, only a few million NIS of the total credit made available by the government were used. By the end of 2009 total real government expenditure was up by 1.6 percent in real terms over that of the previous year.

After the budget was approved the government did not utilize the full amount of the increment, and the under-utilization even increased slightly during 2009:III. In 2009: IV, and especially in December (including the expenditure brought forward from 2010), the under-utilization contracted to almost full utilization. The accumulation of under-utilization during the year and its termination in December—a feature that has become endemic in recent years[22]—is inefficient and detracts from the correct utilization of government expenditure during the year.

Table 6.4
Central Government Deficit, Revenue and Expenditure, 2002–09

(percent of GDP)

	2002	2003	2004	2005	2006[b]	2007	2008	2009
Overall government deficit ceiling excluding credit[a]	3.9[c]	3.0	4.0	3.4	3.0	2.9	1.6	6.0
Actual overall government deficit excluding credit	3.5	5.2	3.5	1.8	0.9	0.0	2.1	5.1
Actual government domestic deficit	3.2	5.0	3.0	1.0	0.2	-0.9	1.3	3.7
Total revenue, net[d]	**33.4**	**31.5**	**31.6**	**32.3**	**32.4**	**32.5**	**30.0**	**27.6**
Taxes and imposts	27.8	26.8	26.9	27.1	27.3	28.0	25.5	23.3
Interest, profits, royalties, revenue from land sales	1.3	1.0	1.0	1.3	1.2	0.9	1.0	1.6
Loan from the National Insurance Institute (NII)	1.5	1.7	1.9	2.1	2.1	2.1	2.1	1.6
US government grants	2.8	2.0	1.8	1.9	1.9	1.5	1.3	1.1
Total expenditure, net[d]	**36.9**	**36.8**	**35.1**	**34.2**	**33.3**	**32.6**	**32.1**	**31.9**
Real rate of change from previous year (%)[e]	-0.8	0.1	0.8	1.8	2.6	2.8	-0.4	1.6
Of which Interest, repayment of principal to NII, and credit subsidy	6.2	7.1	6.7	6.6	6.4	5.9	5.5	5.4
Defense expenditure, net	9.0	8.4	8.0	8.0	8.0	8.0	7.9	7.5
Total primary expenditure excl. defense	21.6	21.2	20.4	19.7	18.9	18.6	18.7	19.1

[a] From 2001, the deficit ceiling specified by law.

[b] Revenue and expenditure in 2006 do not include NIS 2.8 billion transferred to the Compensation Fund and paid as compensation to the public for damage due to the war in the north.

[c] The target set in the middle of 2002. The target set when the budget was approved by the Knesset (parliament) was 3.0 percent of GDP.

[d] Excluding expenditure contingent on revenue, and revenue used to finance contingent expenditure.

[e] Adjusted for changes in the CPI (annual average)

SOURCE: Based on the National Budget Summary, and Central Bureau of Statistics data.

[22] Since 2001 the average expenditure rate in December has been 13 percent of total annual expenditure, compared with 8 percent in the other months. In 2009 the expenditure rate in December was 12.7 percent.

At the end of the year surplus revenues amounted to NIS 3.3 billion,[23] due mainly to surplus tax receipts and the under-utilization of total government expenditure of NIS 1.8 billion. This, together with the fact that nominal GDP was 5 percent higher than the figure used when the budget was being prepared, led to an overall deficit excluding credit of 5.1 percent of GDP at the end of the year (4.9 percent of GDP under the definitions used when the budget was being prepared)—almost 1 percent of GDP less than the ceiling in the budget (Table 6.5). The low extent of under-utilization at the end of the year (less than 1 percent) reflected the low under-utilization by the civilian ministries and the deviation of defense expenditure from the original budget.

The total end-of-year deficit (without credit) was 5.1 percent of GDP, almost one percent less than the ceiling specified in the budget.

The general government deficit in Israel, according to accepted international definitions, rose this year to 6.5 percent of GDP, which is similar to the average for the EU countries.

The general government deficit in Israel, in accordance with accepted international definitions, rose to 6.5 percent of GDP in 2009 (Table 6.6), similar to the average deficit in the countries of the European Union. The average deficit of all the developed countries was slightly lower.[24]

Table 6.5
Components of Deviation from the Original 2009 Budget

(current prices)

	2008 Actual	2009 Original budget	2009 Actual	2009 Difference between budget and actual
		(NIS billion, net, excluding credit)		
Deficit (–)	**-15.2**	**-44.4**	**-39.3**	**5.1**
Of which: Domestic	-9.7	-40.0	-33.9	6.1
External	-5.5	-4.4	-5.3	-1.0
Revenue	**217.5**	**201.8**	**205.1**	**3.3**
Of which Domestic	206.5	192.0	195.0	3.0
Taxes[a]	185.2	173.9	178.7	4.8
Loan from National Insurance Institute	15.5	13.3	12.6	-0.8
Other[b]	7.1	5.9	5.6	-0.3
US government grants	9.7	8.6	8.2	-0.4
Expenditure[a]	**232.7**	**246.1**	**244.4**	**-1.8**
Of which: Domestic	216.9	232.0	229.0	-3.0
Abroad	16.4	14.1	15.4	1.3
Defense	57.3	54.1	57.1	3.0
Interest, repayment to National Insurance and credit subsidy	40.1	43.1	41.3	-1.8
Civilian ministries and transfer payments	135.4	149.0	146.0	-3.0

[a] Including VAT on defense imports.

[b] Income from interest, land sales, royalties, dividends, and other income.The method of recording the data changed in 2009. Income from land sales in the budget proposal are defined as budget income, while in data of budget expenditure they are henceforth defined as a means of financing. In 2009 this amounted to NIS 1.7 billion.

SOURCE: Based on data of the Accountant General regarding the performance of the 2007 budget.

[23] NIS 1.8 billion of this was not recorded as income because of an adjustment, which in itself was correct, introduced this year in the accounting classification of revenue from land sales.

[24] In the transition of the budget deficit as defined in Israel to the international definition, indexation differences on the NIS debt of the general government should be added. Given an inflation rate of 3.9 percent, as was recorded in 2009, the increment is 1.5 percent of GDP.

Table 6.6
Principal Fiscal Aggregates by the Accepted International Definitions: Israel, the OECD and the EU, 2002-09

	2002	2003	2004	2005	2006	2007	2008	2008
General government deficit (-)								
Israel[a]	7.8	5.6	4.7	3.6	1.5	1.7	3.9	6.5
Israel, local National Accounts definitions	5.1	6.1	4.1	2.4	1.0	0.6	2.2	5.0
OECD average[b]	0.9	1.4	1.0	0.2	-1.1	-1.1	0.5	5.5
EU average[b]	1.5	2.0	1.9	1.3	0.1	-0.1	1.7	6.6
General government expenditure								
Israel[a]	53.9	49.3	47.8	46.4	45.0	45.1	44.6	44.4
OECD average[b]	44.6	45.1	44.8	44.5	43.8	43.7	44.9	49.0
EU average[b]	46.9	47.5	47.5	47.1	46.4	46.1	47.7	52.0

[a] The data for Israel were brought into line with the accepted international definition: indexation differentials (accrual basis) on the CPI-indexed local currency debt were added to the general government's deficit and expenditure as defined in the National Accounts. Interest payments on the unindexed local currency debt were included without offsetting the inflation element, unlike in the National Accounts. In the calculation of the deficit, indexation differentials on the public's debt to the government were deducted.

[b] Arithmetic mean of the countries in the group that appear in Appendix Table 6.A.21.

SOURCE: Based on OECD Economic Outlook, 84, November 2008, and CBS data.

The cyclically adjusted deficit

Since the extent of the budget deficit is directly affected by the development of GDP, and primarily via tax receipts, it is customary to examine the development of the cyclically adjusted deficit, too. This is calculated on the basis of the assumption that the economy's output gap has closed.[25] In Israel it is also necessary to adjust the calculation for inflation, because of the unique method of recording interest payments in the National Accounts, because deducting the rate of price increases from the nominal interest rate leads to fluctuations in the interest calculated when the rate of price increases varies.[26]

In 2009 public expenditure expanded by a nominal 4.9 percent, slightly below the nominal increase in potential GDP (when adjusted for the price of public sector consumption it rose by 1.6 percent, less than the rise in real potential GDP), hence on the expenditure side policy was pro-cyclical to some extent. On the tax side, the

[25] The calculation of potential GDP here is based on the average rise in per capita GDP since 1973, which is an annual 1.7 percent. According to this calculation, in 2009 GDP rose by 2.9 percent less than its potential, and the cumulative deviation of GDP from its potential level rose to 3.7 percent, assuming that GDP was equivalent to its potential in 1997. The cyclically adjusted deficit is calculated on the basis of the assumption that tax receipts grow in line with GDP in accordance with the flexibility calculated from the tax model, that receipts from the capital market rise at a fixed rate, and that total income and expenditure not from taxes is not sensitive to changes in GDP (for a detailed account of the calculation, see Section 2, Chapter 5, in the 1999 edition of this report).

[26] When the CBS calculates the general government's interest payments, actual price increases are deducted from the interest rate paid on the unindexed local-currency debt. If prices go down the rate at which prices decline is not added to the interest rate. In calculating the cyclically adjusted deficit we assume a uniform inflation rate of 2.0 percent.

increase in the statutory tax rates in mid-2009 (NIS 3.6 billion) almost offset the reduction in the statutory direct tax rate at the beginning of the year (NIS -4.2 billion), so that on the tax side, too, policy was virtually neutral (more precisely, counter-cyclical by 0.1 percent of GDP). The conclusion to be drawn from this analysis is that the government's policy this year was, as stated, acyclic.

Government policy was acyclic this year; the relatively large increase in the cyclically-adjusted deficit did not reflect this policy due to the large unexplained drop in tax revenues.

The relatively sharp expansion of the cyclically adjusted deficit, shown in Table 6.7, does not reflect the government's policy this year, because of the steep and unexplained fall in tax receipts.[27] In a slightly longer perspective, it may be seen that since 2007 there has been an upward trend in the cyclically adjusted deficit, reflecting the acceleration of tax reductions since then alongside some moderation of the reduction of public sector expenditure relative to potential GDP. All in all, real per capita public sector expenditure has fallen by a cumulative 2.5 percent since 2003 —a negative rate which is not sustainable. Nevertheless, the tax reductions restored the cyclically adjusted deficit in 2009 to a level similar to that at the beginning of the decade, even without taking the unexplained part of the rise this year into account.

Table 6.7
The Cyclically Adjusted Deficit of the General Government, 2002–09[a]

(percent of potential output)

	2002	2003	2004	2005	2006	2007	2008	2009
Overall deficit	3.0	3.0	1.5	0.9	0.5	0.7	1.8	3.3
Domestic deficit	3.2	3.1	1.4	0.5	0.5	0.4	1.9	3.8
Overall deficit by international definitions[b]	4.1	4.2	2.4	1.9	1.7	1.4	2.9	4.2
Average cyclically adjusted deficit[c] of the advanced economies	1.5	1.7	1.5	1.0	0.1	0.3	1.6	4.2

[a] Interest payments were calculated assuming that the rate of inflation during the year was 2 percent, and not according to the actual inflation rate.

[b] The overall deficit was brought into line with the accepted international definitions by adding indexation differentials to the CPI-indexed and unindexed local-currency debt, assuming inflation of 2 percent.

[c] Arithmetic mean of all the countries in the group appearing in Appendix Table 6.A.21.

SOURCE: Based on OECD Economic Outlook, 84, November 2008, and CBS data.

5. THE GOVERNMENT'S SERVICES AND OBJECTIVES

In 2009, because of the economic crisis, the attainment of some of the objectives set in the framework of the economic and social agenda were postponed to 2013. This was because from the outset they were not defined subject to macroeconomic conditions. In 2007 the previous government had defined employment and poverty objectives for

In 2009, the achievement of some of the targets was deferred to 2013 as a result of the economic crisis since from the outset they were not defined as subject to macroeconomic conditions.

[27] If the short-term sensitivity of tax receipts to GDP growth had been identical to that estimated on the basis of the data for 1988 we would have expected a 3 percent decline in tax receipts this year (instead of an actual decline of 6.6 percent), in which case the cyclically adjusted deficit would have risen by 0.6 percentage points (instead of it actual increase by 1.3 percentage points). If the short-term elasticity of tax receipts had been in line with their long-term elasticity, i.e., unitary, taxes would have increased by 0.5 percent and the cyclically adjusted deficit would have been smaller by 0.6 percent of GDP.

the next few years (starting in 2008). For further details about the implementation of the government's objectives regarding social welfare, see Chapter 8.

The composition of government current expenditures in the last ten years has been characterized by an increase in the share of welfare expenditure at the expense of defense expenditure.

Regarding the development of the composition of the general government's expenditure in the last ten years (Table 6.8), it is possible to discern a certain trend—a rise in the share of welfare expenditure at the expense of that of defense expenditure,[28] and especially the increase in the rate of expenditure on social insurance and welfare since 2005. The share of expenditure on education and health did not change in the period reviewed, and neither did real public sector per capita expenditure in these areas (NIS 3,900 and NIS 5,800 on health and education, at 2009 prices, respectively). Real

Table 6.8

Composition of General Government Expenditure by Type of Expenditure[a], 2002–09

(percent of total government expenditure, excluding financing expenses)

	1999-01 Average	2002-03 Average	2004-05 Average	2006	2007	2008	2009
A. Public items							
1. Defense	18.5	19.3	18.5	18.8	18.1	17.6	16.9
2. Government services[b]	8.7	8.8	9.1	9.1	9.3	9.4	9.4
B. Welfare expenditure		**63.0**	**63.4**	**62.3**	**63.2**	**63.6**	**64.3**
Total welfare expenditure	63.5	17.0	17.6	17.4	18.1	18.1	17.7
1. Education	17.6	11.2	11.6	11.3	11.4	11.6	11.5
2. Health	11.7	2.1	1.8	1.7	1.5	1.3	1.3
3. Housing and community services[c]	2.3	3.5	3.3	3.4	3.5	3.4	3.4
4. Sport and religion	3.7	29.2	29.1	28.5	28.8	29.2	30.4
5. Social insurance and welfare[d]	28.2						
C. Economic services[e]	**1.6**	**2.0**	**2.3**	**2.2**	**2.5**	**2.5**	**2.5**
Investment in transport infrastructure[f]	6.2	5.5	5.1	6.0	5.3	5.2	5.3
Other[g]	1.5	1.5	1.6	1.6	1.6	1.6	1.6
D. Quality of environment	**1.5**	**1.6**	**1.6**	**1.6**	**1.6**	**1.7**	**1.6**

[a] This table is based on Central Bureau of Statistics calculations following the definitions used in the National Accounts. Expenditure in each item includes current expenditure and investment.

[b] Including general administration, foreign relations, public order, police and justice.

[c] Including mortgage subsidies.

[d] Including transfer payments to households and welfare services.

[e] Including economic administration, agriculture, forestry, fisheries, quarries, manufacturing, construction, electricity, gas, water, roads, transport, communications, the subsidy component in loans to the business sector, and general research.

[f] Including investment in construction of roads, in the railways, seaports and airports. Investment in roads does not include investment by Derech Eretz Highways Ltd.

[g] Including subsidies of public transport, agriculture and domestic production, transfer payments on the capital account, the Industry Research Fund, and fuel subsidies.

SOURCE: Based on Central Bureau of Statistics data.

[28] The years 2002–03 are the exception, being characterized by high defense expenditure due to the Intifada and the 'Defensive Shield' campaign.

private per capita consumption—an accepted index of the quality of life—rose by 16 percent in this period.

On the demand side, as Appendix Table 6.A.10 shows, the dependency ratio[29] fell by 1.1 percentage points (continuing the long-term downward trend). This change means that there is a decline in the potential demand for welfare needs. The decline in the share of defense expenditure, which is also the continuation of a downward trend, derives from the fact that this public good benefits from a significant economy of scale: in contrast to other public goods (including education and health), there is no need to increase defense expenditure in accordance with population growth in order to maintain the level of security per capita, but merely to adapt this expenditure to the state of the threats to security.

6. FINANCING THE DEBT

a. The outstanding net public sector debt and the debt/GDP ratio

In 2009, the ratio of the public debt to GDP rose by about 3 percentage points relative to the previous year to a level of 79.8 percent.

The public debt/GDP ratio rose by 3 percentage points in 2009 to 79.8 percent, after declining for the previous six years. This increase was lower than expected, after pessimistic forecasts of GDP growth and the expansion of the deficit made at the beginning of the year. These forecasts, against the backdrop of the global crisis, expressed the assessment that the recession would be deeper in Israel than it actually was. In comparison with the moderate rise in the debt/GDP ratio in Israel, in the OECD countries it grew by an average of ten percentage points, to 76 percent, its highest level for thirteen years. This was the result of the marked fiscal expansion and the more significant impact of the global crisis on these countries than on Israel.

The increase in the debt/GDP ratio in Israel stemmed from the need to finance the large government deficit, from the fact that NIS 10 billion in excess of the government's requirement was borrowed, and from the high indexation payments as a result of the rise in the CPI in 2009—which had an effect via the mix of the government's outstanding debt, half of which is in CPI-indexed bonds (Table 6.9). The government borrowed a net total of NIS 42 billion this year, compared with NIS 13 billion in 2008.

Among the factors behind the moderate rise in the debt/GDP ratio in 2009 were the five percent expansion of nominal GDP, higher privatization revenues than had been forecast,[30] a shortfall in credit extended,[31] and the postponement of issues planned for the end of 2009, as part of the Treasury's policy of maintaining the declining path of the debt/GDP ratio.

[29] The proportion of persons in the 0–24 and 65+ age-groups in the total population.

[30] Due to a technical change: for the first time this year land sales are recorded as privatization receipts rather than government revenue.

[31] This is the share of the budget designated for credit to the public but not utilized.

Table 6.9
Components of Change in Gross Public Debt in 2008 and 2009

(percent of GDP)

	2009
Debt at the end of year	76.9
Nominal increase in GDP	-3.8
Net borrowing	5.5
of which Budget deficit, cash basis	5.1
Repayment of net credit by the public[a]	-0.7
Receipts from privatization	-0.3
Total change in the government's deposits in banks[b]	1.4
Revaluation of indexed local-currency debt[c]	1.5
Revaluation of foreign-currency debt	-0.3
Remainder[d]	79.8
Total debt at the end of year	78.0

[a] Including credit extended and principal paid.
[b] Surplus borrowing.
[c] The rise in the CPI during the year.
[d] Adjusted according to issue price, and rounding. At this stage the data are based on initial assessments, which is why the remainder is still high.
SOURCE: Bank of Israel.

b. Borrowing costs

The combination of particularly large-scale borrowing and low borrowing costs will lead to savings of NIS 3.5 billion in interest payments in coming years.

In 2009 net government borrowing reached a peak unseen since the establishment of the State of Israel—some NIS 102 billion (in nominal terms). This was due to the large extent of redemptions and the need to finance the budget deficit. Concurrently, borrowing costs, both indexed and unindexed, fell significantly (Figure 6.7). The combination of the particularly extensive borrowing and low interest rates of issues has led to savings of about NIS 3.5 billion in interest payments for the next few years.[32]

The factors supporting these low borrowing costs this year stemmed from both the macroeconomic environment and domestic developments:

One of the factors that contributed to the low cost of borrowing in 2009 was the low level of interest rates in Israel and abroad.

The contraction of interest rates in Israel and elsewhere due to the recession: the Bank of Israel reduced its key interest rate from 4 percent in 2008:IV to its lowest level ever, 0.5 percent, in order to contend with the recession. As a result both nominal and real interest rates fell for all periods to maturity.[33]

[32] The calculation was made on the basis of the average interest rate for various terms in the last five years.

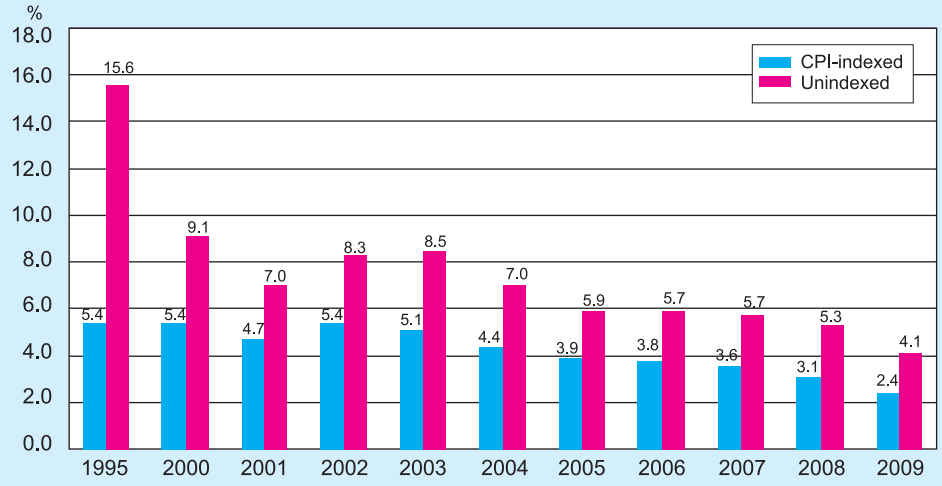
[33] While the central bank affects only short-term nominal interest, this has an effect on long-term interest rates via expectations of interest-rate changes in the future. For an analysis of this link, see H. Ber, A. Brender, and S. Ribon (2003), "Are Fiscal and Monetary Policies Reflected in Real Yields in the Money Market? Empirical Evidence from Israel," Economic Quarterly, 4 (Hebrew).

A shift in individuals' assessments of risk: as a result of the wide fluctuations on the stock market in 2008, persisting in the first few months of 2009, individuals switched to solid channels, and the increased demand for government bonds contributed to the continued decline in yields.

Fiscal credibility: the ongoing reduction of the public sector debt/GDP ratio in recent years boosted the government's credibility, hence its rise in 2009 was not expressed in an exceptional increase in long-term yields. This contrasts with the recession at the beginning of the decade, when the rise in the public sector debt/GDP ratio led to an increase in these yields, and hence to a rise in borrowing costs.

The purchase of government bonds by the Bank of Israel: on 15th February the Bank of Israel announced that it would buy government bonds on the secondary market. This intervention supported the decline in yields on the market, thus reducing borrowing costs.

Figure 6.7
Price of Shekel-Denominated Borrowing, 1995-2009



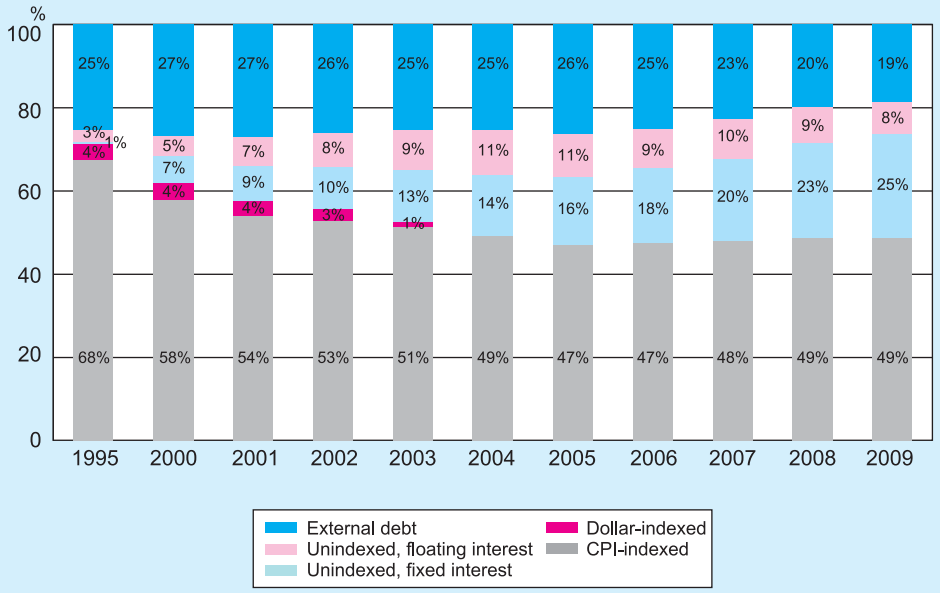
SOURCE: Bank of Israel and Ministry of Finance .

c. The management of the debt

Due to the large scale of redemptions in 2009, risk management in the recycling of existing debt became increasingly important.

The Ministry of Finance policy in managing the government's debt is to reduce both borrowing costs and risk. In 2009, in view of the large extent of redemptions and the sizeable budget deficit, the importance of monitoring risk increased. There is a trade-off between reducing market risks and lowering borrowing costs. Thus, for example, it is (generally) cheaper to issue short-term rather than long-term government bonds. At the same time, however, debt that is unduly short term exposes the government to risks arising from extensive redemptions in future market conditions, which could be undesirable for the government (the risk of rolling over debt). Additional risks in managing the debt are issuing large amounts of foreign-currency-indexed bonds,

Figure 6.8a
Composition of Government Debt, 1995–2009



SOURCE:Based on Ministry of Finance data.

which expose the economy to exchange-rate fluctuations, and issuing floating-interest-rate bonds, which embody interest-rate payments which are not known in advance. An examination of the trends in the outstanding government debt (Figure 6.8a and Appendix Table A.6.20) indicates that some of these risks continued to decline in 2009 because the share of the unindexed debt has continued to rise at the expense of the floating-interest debt and the foreign-currency-indexed debt. However, the share of the indexed debt remains high by international standards, because the Ministry of Finance continued to issue large amounts of indexed bonds in 2009, thereby deviating from one of its long-term targets—reducing the indexed component of the debt.

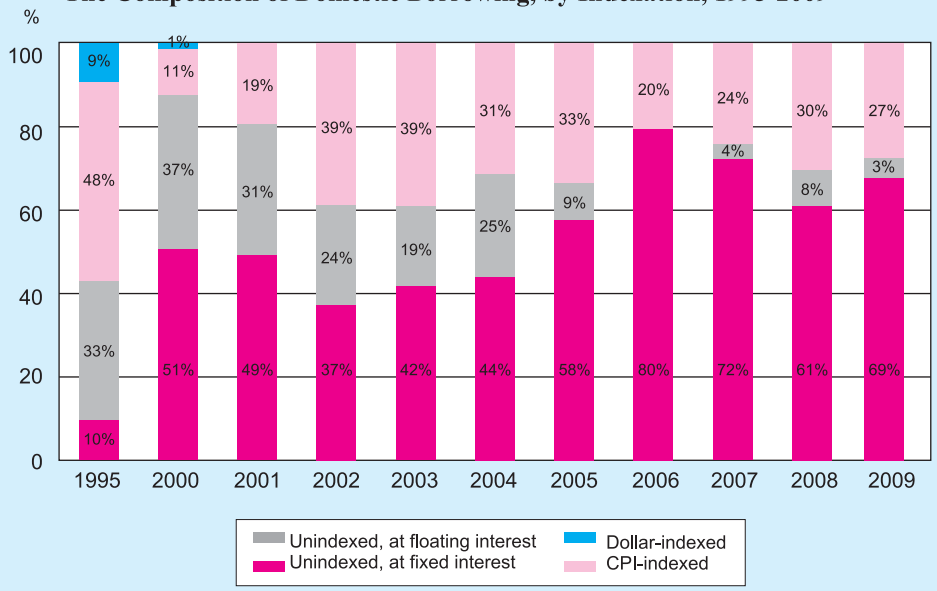
d. The composition of borrowing

During the first half of 2009, the Ministry of Finance issued mainly short-term bonds.

Borrowing in 2009 (Figure 6.8b) constituted a continuation of the trend that had begun at the end of 2008—further reduction of the average term to redemption of issues, expressed in the great number of issues for periods of less than five years to maturity. Some 69 percent of total borrowing in the domestic market was via fixed-interest bonds, 55 percent of it for periods of less than five years compared with 40 percent in 2008.[34]

[34] Nevertheless, the term to maturity of the outstanding debt rose slightly (Appendix Table 6.A.20) because a large proportion of the debt reached maturity in 2009. Last year this debt was for one year, and was rolled over for a longer period.

Figure 6.8b
The Composition of Domestic Borrowing, by Indexation, 1995-2009



SOURCE:Based on Ministry of Finance data.

An examination of the above trends throughout the year shows that it is possible to discern two main periods: the first half of the year, when interest rates plummeted both in Israel and elsewhere, and the second half, when interest-rate and inflation expectations rose.

Developments in the first half of 2009 were the direct result of events in 2008:IV, when there was still considerable uncertainty in the market regarding the extent of the impact on Israel's economy. This was expressed in the gap between nominal ten-year and two-year yields, which was over 3 percentage points—high in both historical and international terms. This gap can be explained by expectations of a higher interest-rate environment in the future and extensive demand for short-term government bonds.

In this context the government issued about two-thirds of the short-term debt (up to five years) in the first half of 2009. In addition, it made extensive use of short-term (less than one year) government bonds. Thus, some 80 percent of these bonds were issued in the first half of the year, with particularly high demand, possibly because the government assessed that the large yield gap between short- and long-term bonds reflected a particularly high premium,[35] i.e., investors' demand for high compensation for holding long-term bonds. Consequently, in the first half of 2009 the Ministry of Finance preferred not to issue large quantities for this term, thereby reducing borrowing

[35] This premium is sometimes called the liquidity premium and sometimes the inflationary premium, see R. Shiller and H. McCulloh (1990), "The Term Structure of Interest Rates," NBER Working Papers.

costs. During this period it issued NIS 10 billion beyond its financing needs, in order to be prepared for extensive redemptions at the beginning of 2010.

In the second half of the year uncertainty diminished as positive indicators regarding Israel's economic recovery began to emerge, alongside a rise in inflation expectations for the medium run (five years), expressed in an increase in both nominal and real interest rates, the latter being more moderate. Against the backdrop of the rise in inflation expectations the Treasury began (already towards the end of the first half of 2009) to issue large amounts of five-year indexed bonds, apparently in order to utilize the gap between the interest rates as well as to vary financing methods. At the same time it also extended the term to redemption of the nominal bond issues. The average term of government bond issues in the second half of 2009 was 7.2 years to maturity, compared with 6.5 years in the first half of the year.

In order to diversify the financing of the debt, the Ministry of Finance issued bonds in the US market in the record amount of NIS 1.5 billion.

In order to cope with the considerable extent of redemptions this year the government continued to vary its debt financing methods. During March it issued ten-year bonds on the US market without US government guarantees, with a yield to maturity of 5.19 percent, in a record amount of $ 1.5 billion. The amount of this issue that was taken up was particularly high despite the considerable uncertainty that prevailed at that time. In 2009, too, the government issued swaps (bond purchases before the term to maturity against new bond issues) in reverse auctions (early redemption of bonds against money payment), in the amount of NIS 15 billion. Financing the debt by means of these auctions serves to smooth redemptions, and thereby to reduce debt rolling over risks.

To summarize: in 2009 the government managed to utilize market conditions to borrow at a low cost. These costs stemmed in part from the macroeconomic environment, expressed in a decline in interest rates for all terms to maturity, and in part from bond issues for short terms (in which interest rates fell more sharply). Note, however, that cheap borrowing (at a result of short-term bond issues) embodies an increase in risk, and the large extent of redemptions in 2009 constitutes an example of this. If interest rates had been high this year a huge debt would have been rolled over at a high cost. Consequently, in future issues it is worth considering varying the terms to redemption by issuing for both medium and long terms—in order to smooth the extent of future redemptions at the expense of reducing borrowing costs in the short term.

7. AN ANALYSIS OF THE CENTRAL GOVERNMENT BUDGET: A LONG-TERM VIEW

a. The background and the state of the budget in 2010 and 2011

The 2010 budget, which was approved in July 2009 as part of the two-year budget, is affected by the fact that interest rates are substantially lower than predicted when the budget was approved. Because these interest rates effected the rolling over of

substantial amounts of debt, the government's interest payments in 2010 are expected to be NIS 3 billion lower than the budgeted amount,[36] making it easier to remain under the expenditure ceiling determined by law. In addition, both real GDP and the level of prices are expected to be significantly higher than forecast in the budget, so that revenues will grow faster than predicted. In 2009, in contrast with previous years, the contribution of the reduction of tax rates to the decline in revenues was not great, so these revenues are expected to recover with economic activity (reversing the negative effect of the automatic stabilizers during the crisis); moreover, since budgetary expenditure is determined in nominal terms, the deficit in 2010 is expected to be significantly below the ceiling set at the time the budget was approved (5.5 percent of GDP), even if the government uses the entire amount budgeted.

The rate of interest on bonds issued by the government was lower than expected this year and as a result interest expenditures will be reduced by about NIS 3 billion annually in coming years.

The improved state of the budget means that the government will have to decide whether to utilize the unplanned enhancement of the fiscal situation (compared with the forecast) to try and boost the economic recovery and respond to various budgetary needs by increasing expenditure to reach the ceiling. On the one hand, given the level of the ceiling, it is possible to use the budget framework for expenditure that has not been planned in advance in order to expedite the closing of the output gap. On the other hand, the expenditure ceiling for 2009 and 2010 was raised from the outset because of the crisis, so lower spending now, when it is becoming clear that not all of the budget designated for interest payments will be required, could strengthen the credibility of the government's commitment to reducing the debt and illustrate that the deviation decided on was indeed a response to the unusual economic circumstances prevailing at the time the budget was approved. A decision of this kind should be made in accordance with a long-term policy path, as described in detail below.

The deficit in 2010 is expected to be substantially lower than the ceiling.

The difference between interest rates and the price level in 2009 and 2010 and their levels as forecast in the budget is expected to have a marked effect on the 2011 budget, too. Previous examinations of the expected 2011 budget indicated that there would be a considerable difference, NIS 11 billion, between the level of expenditure derived from the various long-term plans adopted by the government in the spheres of security, social welfare, and the infrastructure,[37] on the one hand, and the level of spending permitted in accordance with the expenditure ceiling determined by law, on the other.[38] However, the higher than expected inflation narrows this gap by

Previous analyses of the expected budget for 2011 indicated a significant gap between the level of expenditures derived from the various long-term programs adopted by the government and the legal limit on expenditures; this gap was closed as a result of the trend in prices and the low rate of interest.

[36] The precise amount depends, inter alia, on the decision of the Accountant General as to whether and to what extent to bring forward the redemption of bonds from 2011.

[37] For a detailed analysis of the differences, see the 2007 edition of this publication.

[38] A government proposal to change the expenditure ceiling was submitted to the Knesset. An analysis of the trajectory of expenditure in accordance with the proposal appears in Section 7 (c).

NIS 6.5 billion,[39] the decline in interest payments reduces the gap by NIS 3 billion, and the permanent cuts made in the budget at the end of 2009, alongside defense expenditure fluctuations over the years, reduces it by another NIS 1.5 billion. As a result, at present the excess expenditure expected in 2011 has been eliminated. However, maintaining the framework means that no additional decisions should be made which augment expenditure. In particular, making use of the increase in prices beyond what was planned in order to close the gap will require a determined budget policy that will prevent compensating for price increases, for example in wage negotiations. Moreover, in 2011 the temporary NIS 3.25 billion increase in expenditure approved for both 2009 and 2010 will come to an end. Because a large part of this increase was *not* designated for specific one-off outlays, an additional effort will have to be made in 2011 in order to adapt the budget framework to this reduction, too. Furthermore, even if the budget conforms to the framework determined by law in 2011, there is still a significant gap between the cost of the government's long-term plans and the expenditure path permitted by law for the years after 2011.

To stay within the legal deficit limit will require that expenditure not be increased by the full amount permitted by the expenditure ceiling or that tax revenues be increased by legislative means.

In addition to the expenditure ceiling, the budget is also subject to the deficit ceiling, the one set for 2011 being three percent of GDP. According to the current forecast, expenditure at a level that is in line with the present ceiling (including the adjustments mentioned above) will lead to a slightly higher deficit if GDP grows by 4 percent. This means that before 2011 the government will have to decide whether to increase expenditure by less than the level permitted in accordance with the current expenditure ceiling or augment its revenues by NIS 3 billion, e.g., by canceling the tax cuts planned for that year (personal income tax, corporate tax, and VAT). A third option is to permit the deficit to expand, which will lead to a larger debt. The choice between the various possibilities is a political one, reflecting the preferences of decision-makers, but it should be made in awareness of the implications of the policy path chosen and with reference to the current level of the fiscal aggregates.

Despite the improvement of recent years in both absolute terms and relative to other countries, Israel's debt/GDP ratio and deficit are still higher than those of most developed countries, and in addition Israel is subject to the risk of security and political developments which require extensive additional expenditure. Consequently, it is important to reduce the debt/GDP ratio at a pace that is consistent with Israel's situation. Such a reduction is especially challenging in light of the low level of primary civil public expenditure in Israel compared with that in other countries—a level that makes it doubtful whether it is possible or desirable to lower it further to any significant degree—and in light of the existing gap between the expected level of

[39] The budget is set in nominal terms, and is based on a forecast of prices prepared at the time it is submitted to the Knesset. When there is a gap between predicted and actual inflation, the budget is adjusted in the following year by that difference. Since the expected level of prices in 2010 is higher by 2.5 to 3 percent than the level used at the time the budget was prepared, the expenditure ceiling for 2011 will be raised by that rate, in addition to the customary changes. Since the size of the budget (excluding repayment of principal) is about NIS 250 billion, the adjustment adds NIS 6.5 billion in real terms to the budget.

government expenditure deriving from long-term decisions taken and the expenditure ceiling set by law for the next few years.[40].

In order to examine the conditions confronting the government and the Knesset in deciding on the fiscal policy path for the coming years, below we present an analysis of the expected development of the budget in the next few years under two scenarios, reflecting two alternative approaches to the expenditure path: 1. maintaining the present expenditure ceiling; 2. increasing expenditure in accordance with the new expenditure rule included in the government proposal submitted to the Knesset.

b. The framework and assumptions of the analysis

To examine the expected development of the budgetary aggregates in 2010–20 according to the various policy paths, we used a model for the long-term analysis of the budget based on the development path of the fiscal variables in the past,[41] as well as on the government's decisions regarding future policy. The model includes estimates of the budgetary implications of the government's decisions for specific measures in the coming years, and also examines the expected development of the budgetary aggregates if they are implemented.[42] The forecast is based on a plethora of assumptions, as described below.

The main assumptions underlying the long-term forecast of the development of the budget

- Real GDP will rise by 3.5 percent in 2010, by 4 percent in 2011 and 2012, and by 3.5 percent in 2013. Thus, the output gap that emerged in 2009 will be closed by 2014, after which potential GDP will grow at an annual rate of 3.2 percent. This calculation is based on an increase of GDP per person of the working-age population (aged 25–64) at a similar rate to the average of the last thirty-five years, which was quite stable during this period.
- The real yield on government bonds issued in and after 2011 will be 4.0 percent, similar to the average of the last decade (6.5 percent on unindexed bonds).

[40] For an extensive discussion of this topic, see A. Brender (2009), "Targets or Measures? The Role of Deficit and Expenditure Targets in Israel's Fiscal Consolidation Efforts, 1985–2007," The Israel Tax and Economic Quarterly, 33 (129), May, pp. 7–34 (Hebrew).

[41] For a more detailed account of the framework of the analysis, which is updated continually, see K. Braude and A. Brender (2003) The Effect of the Economic Program on the National Budget in 2003–2008, Bank of Israel, July (Hebrew).

[42] The analysis for 2010 as regards expenditure is based on the budget. The forecast of revenues and interest payments is based on the present macroeconomic environment, which differs from that which prevailed at the time the budget was approved, in the summer of 2009.

- The CPI and the GDP deflator will rise by 2 percent a year,[1] except in 2010, when the CPI (as an annual average) will rise by 2.5 percent and the GDP deflator by 2 percent. The working assumption in this analysis is that at the end of 2010 the NIS/$ exchange rate will be NIS 3.8.[2]
- Expenditure on health and education will increase in accordance with changes in the composition and size of the relevant populations.[3] The quantitative expansion of these services, per recipient,[4] will be in line with the rise in GDP per employee without any change in productivity. The real wage in these spheres will not rise by 2012 beyond the current agreements between the government and the respective employee associations of the teachers, lecturers, and physicians.
- The implementation of various private bills that have been deferred in the past, and are supposed to go into effect in the next few years, will be postponed once more.
- Tax revenues adjusted for legislative changes will change in 2010 in accordance with the detailed tax model of the Research Department. In 2011 and 2012, when economic activity is expected to recover, wage elasticity will exceed the long-term average, according to the model's coefficients. Later on revenue elasticity with respect to the rise in GDP will be 1.05, similar to its rate in the last two decades.
- There will not be any additional privatizations in the next few years.[5]
- After 2013, expenditure on the various budget items will rise in accordance with the long-term paths, predicted for them on the basis of historical trends —with the exception of defense, which will grow on the basis of the trajectory determined by the Brodet Committee. The supplementary military aid from the US government is not included in the expenditure ceiling under the government's accounting definitions.
- Starting in 2013, the government will benefit from royalties on the natural gas discovered in the Tamar field.

[1] The rate at which prices of public sector consumption rose in the last decade was similar to that of the CPI.

[2] The inflation rate assumed for 2010 is consistent with a 2 percent rise in the CPI during the year. If the assumed exchange rate against the dollar is changed to NIS 3.7 the debt/GDP ratio at the end of 2010 will be 0.4 percent.

[3] According to CBS (2008), Forecast of Population in Israel to 2030 (Hebrew).

[4] For primary school pupils, for example. This assumption is an illustration also intended to express an increase in the number of recipients of services due to legislative changes, e.g., the extension of) the Compulsory Education Law to pre-schoolers.

[5] This is a working assumption. The government plans several additional privatizations, whose implementation will lower the public sector debt while reducing the flow of revenues from dividends and royalties.

The underlying basis of the analysis is the 2010 budget, with adjustments for changes which have occurred since it was approved, as given above. These include 1) higher forecast revenues than in the budget, 2) lower expected interest payments, and 3) several smaller changes in the composition of expenditure. With regard to the 2011 budget it is assumed that expenditure will rise by 3.0 percent in real terms, in accordance with the following parameters: 1. An additional 1.7 percent, in accordance with the law; 2. A 1.3 percent reduction due to the temporary increment approved for the 2009 and 2010 budgets; 3. An extra 2.5 percent for price-adjustment.[43] The analysis also assumes that the government will use NIS 4 billion of the surplus financing in 2009 to finance the 2010 deficit, and another NIS 3 billion in 2011, thereby reducing the increase in the debt in those years respectively.

c. The expected development of the budget aggregates under alternative policy paths

The analysis is presented in several stages. We first examine expected developments according to the increase in expenditure and tax-reduction path under the present legislation—the 'current expenditure rule' path—and then the adjustments required under this scenario in order not to deviate from the legal deficit ceiling. This examination points to the difficulties in observing this rule which contributed to the decision to change it. We then present an analysis of the new fiscal rule proposed by the government in two versions: the first, in which the budgetary adjustments required to maintain the deficit ceiling are all implemented on the expenditure side, and the second, the 'new expenditure rule' path, in which the expenditure ceiling is raised to the maximum permitted under the new rule, and all the adjustments are made on the revenue side.

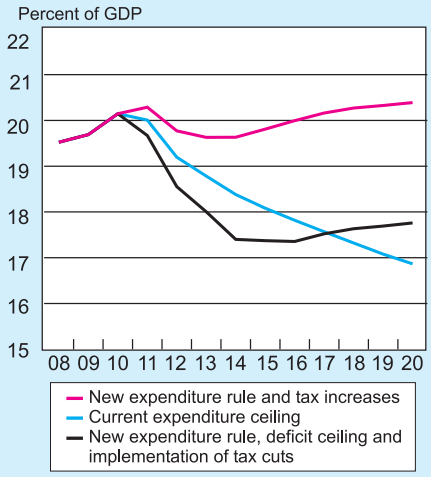
The current level of total expenditure enables a real increase of 4.3 percent in per capita primary civilian expenditure up till 2020, which represents about one-quarter of the expected increase in per capita GDP.

The current expenditure rule path assumes that once the adjustments required by the present law are implemented with regard to government expenditure in 2011, as described above, it will continue to expand by 1.7 percent a year in real terms. Concurrently, VAT and the National Insurance contributions ceiling will be reduced in 2011 in accordance with existing legislation, and the cuts in personal and corporate income taxes will be implemented as planned in 2011–16. According to this policy path, government spending as a share of GDP will be lower in 2011 by 0.6 percentage points than in 2009 and will continue to fall afterwards. Primary civilian expenditure is also expected to fall, reaching less than 17 percent of GDP in 2020, 3 percentage points below its level in 2009 (Figure 6.9); this will happen despite the relatively moderate path of the increase in defense spending, about 1.3 percent a year, in accordance with the path set by the Brodet Committee, a path which frees-up resources to civilian expenditure. Real primary civilian expenditure per capita is expected to expand by 4.3 percent between 2009 and 2020 (over the entire period, not as an average), while per capita GDP will grow by 19 percent in that period.

According to the current expenditure rule, primary civilian expenditure is expected to reach 17 percent of GDP by 2020, which is 3 percentage points less than its level in 2009.

[43] In accordance with the law, the expenditure ceiling is calculated on the basis of the previous year's budget and not on that of actual expenditure.

Figure 6.9
Share of Primary Civilian Expenditure in GDP Under Various Policy Paths, 2008-20



SOURCE: Bank of Israel.

Despite the sharp restriction of expenditure, this policy path leads to only a moderate decline in the debt/GDP ratio by 2014, and does not make it possible to meet the legal deficit ceiling. In 2011 the deficit is expected to be 3.4 percent of GDP, as stated, compared with a ceiling of 3 percent, and in 2012 it will be 2.7 percent of GDP, compared with a ceiling of 2 percent. This means that it will be necessary to adjust the budget at a similar magnitude to the tax reductions planned for those two years—by reversing the cuts, increasing revenues by alternative measures, or slowing the rate at which expenditure rises to 1.8 percent in 2011 (instead of 3 percent on the basis of all the adjustments described above) and 0.6 percent in 2012. Additional adjustments of between NIS 1.5 billion and NIS 2 billion will have to be made in 2013 and 2014 so that the deficit will reach the target of 1 percent of GDP in and after 2014. Only in 2015, if these adjustments are made, will it be possible to maintain the deficit ceiling alongside the expansion of expenditure beyond the path determined in the law or to reduce tax rates. If the government does indeed choose to check the reduction of the deficit at the level of 1 percent of GDP (in accordance with the ceiling set by law for the years after 2014) the debt/GDP ratio will decline gradually, reaching some 60 percent of GDP in 2020 (Figure 6.10).[44]

It will be difficult to implement the policy path based on the current expenditure and deficit rules because of the lower level of primary civilian expenditure in Israel than in the developed countries[45] and the large gap between the rise in the standard of living (expressed in per capita GDP) and the increase in public sector expenditure permitted by the path (even if the entire adjustment required to meet the deficit target is made by canceling tax cuts), particularly over such a long period. This difficulty is also indicated by the difference of over 1.5 percent of GDP between the level of expenditure derived from the government's long-term plans for 2012–14 and the expenditure ceiling.[46] While experience shows that there is no guarantee that all the long-term plans will be implemented, it is likely that the government(s) which will be

[44] On the basis of the current expenditure ceiling and the tax rate path, the deficit is expected to continue contracting after 2015.

[45] OECD, Israel, Economic Survey, 2009. International Monetary Fund, Israel Staff Report, 2009. See Figure 6.4b.

[46] The calculation of this difference assumes that the new wage agreements that will be reached in the public sector during this period will more or less maintain the level of real wages. This is a considerable challenge in view of the unexpected wage erosion due to inflation in the last such agreement.

Table 6.10
Expected Path of Principal Budget Aggregates, According to Various Scenarios, 2008–14

(percent of GDP)

	Estimate		Forecast				
	2008	2009	2010	2011	2012	2013	2014
(1) The existing expenditure rule[a]							
Expenditure excluding credit	33.8	33.8	33.4	33.2	32.5	32.0	31.6
Real change in net expenditure	-0.9	2.2	1.2	3.0	1.7	1.7	1.7
Tax revenues	25.5	23.3	24.0	24.3	24.2	24.0	23.8
Deficit excluding credit	-2.0	-5.1	-4.1	-3.4	-2.7	-2.3	-2.1
Gross public debt	76.9	79.5	80.1	79.5	78.5	77.5	76.0
(2) The existing expenditure rule with adjustment to deficit ceiling by reducing expenditure[a]							
Expenditure excluding credit	33.8	33.8	33.4	32.8	31.8	31.1	30.5
Real change in net expenditure	-0.9	2.2	1.2	1.8	0.6	1.0	1.0
Tax revenues	25.5	23.3	24.0	24.3	24.2	24.0	23.8
Deficit excluding credit	-2.0	-5.1	-4.1	-3.0	-2.0	-1.5	-1.0
Gross public debt	76.9	79.5	80.1	78.7	77.0	75.2	72.8
(3) New unadjusted expenditure rule[a]							
Expenditure excluding credit	33.8	33.9	33.4	33.5	33.1	32.8	32.7
Real change in civilian expenditure excluding credit	1.9	3.2	1.2	3.9	2.6	2.5	3.0
Tax revenue	25.5	23.4	24.0	24.3	24.2	24.0	23.8
Deficit excluding credit	-2.0	-5.1	-4.1	-3.6	-3.3	-3.1	-3.2
Gross public debt	76.8	79.8	80.1	79.8	79.3	79.1	78.7
(4) Expenditure biased path							
Expenditure excluding credit	33.8	33.8	33.4	33.5	33.1	32.8	32.7
Real change in net expenditure	-0.9	2.2	1.2	3.9	2.6	2.5	3.0
Tax revenues	25.5	23.3	24.0	24.9	25.4	25.6	26.0
Deficit excluding credit	-2.0	-5.1	-4.1	-3.0	-2.0	-1.5	-1.0
Gross public debt	76.9	79.5	80.1	78.7	77.0	75.2	72.8

[a] Assuming full expenditure of the budget from 2010. The increased expenditure in 2010 includes an addition of about 2.5 percent—a correction for the higher increase in prices than in the budget forecasts for 2009 and 2010—and a reduction of 1.3 percent due to the ending of the temporary expenditures authorized in the budgets.

SOURCE: Bank of Israel.

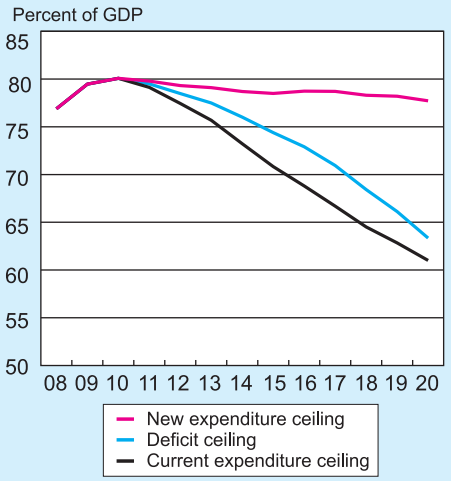
in office until 2012 will doubtless wish to adopt additional plans, and that the cost of these, e.g., in the area of the infrastructure, will tend to be far higher than the initial estimates (see Box 6.3). Moreover, if GDP growth is slower than expected, the path will require further budgetary adjustment in order to meet the deficit ceiling. However, if GDP growth is faster it will not enable expenditure to be increased in order to meet the expected rise in demand for public expenditure. To contend with these limitations the government has decided to replace the present rule.

The increase in expenditure according to the new ceiling will become relevant only if it is decided that most of the budget adjustment in order not to exceed the deficit ceiling will be carried out on the revenue side, unless growth is faster than expected.

According to the new expenditure rule proposed by the government it appears to be entitled to increase expenditure more rapidly than under the current rule, thus responding more readily to the demand for public services and intervening in

income distribution. However, in the next few years the combination of the rise in expenditure in accordance with the ceiling and the reduction of taxes set by law does not enable the deficit to be maintained in accordance with its legal limit (path 3 in Table 6.10), unless there is significant and prolonged acceleration of GDP growth. Consequently, the rise in expenditure in accordance with the new ceiling will be relevant only if most of the budgetary adjustment needed to meet the deficit ceiling is made on the revenue side. If the government decides to maintain the tax-reduction path, without alternative measures to raise revenues (e.g., expanding the tax base) the deficit ceiling will require the increase in expenditure to be at the same rate as the second policy path shown in Table 6.10, i.e., even less than 1.7 percent.[47] Primary civilian expenditure will be below the 1.7 percent path until 2017 (Figure 6.9). However, the advantage of the new path is that after 2015, once the legislated tax reductions are effected, it enables expenditure to be increased more quickly than under the current rule, while reducing the deficit and utilizing the reduction in interest payments to further raise primary civilian expenditure.

Figure 6.10
Debt/GDP Ratio in Various Scenarios, 2008-20



SOURCE: Bank of Israel.

If the government adopts a policy in which expenditure is increased according to the new rule and all the necessary adjustments in order to meet the deficit target are carried out on the revenue side, then the share of primary civilian expenditure in GDP will remain stable until 2015 and from then on will gradually rise.

If, alternatively, the government adopts a policy path according to which expenditure expands in line with the new rule, and all the adjustments in order to meet the deficit target are made on the revenue side, expenditure in 2014 will be only 1 percent of GDP lower than in 2009, and 2 percent of GDP higher than under the policy path in which all the adjustments are made on the expenditure side. Furthermore, the share of primary civilian expenditure in GDP will remain stable until 2015, and will begin to rise gradually subsequently (Figure 6.9). However, this path requires not only the cancellation of the tax cuts that have been legislated for 2011–15, but also additional tax hikes amounting to 1 percent of GDP. Given the current level of the share of public sector expenditure and tax revenues in GDP, it would seem that a path such as this has a greater chance of being implemented, if the government chooses to do so, although the decision as to whether this path is also desirable is a political one which depends on policymakers' preferences.

[47] An alternative way would be to determine that the transition to the new expenditure rule will be affected without compensation for past deviations of prices from their forecast, under the current rule.

d. Conclusion

An attempt to base fiscal policy on the erosion of expenditure according to the present rule will endanger the possibility of reducing the deficit and the debt as a result of the difficulty in persevering with such a policy.

The analysis of the policy paths shows that considerable risks beset the ability to implement the path based on the current rule and that a decision on fiscal policy targets in the medium and long run is required. This path leads to relatively low tax rates by international standards, alongside a lower level of primary civilian expenditure than in almost all the developed countries. Beyond the question of whether such a level of expenditure is desirable for reasons of efficiency, the attempt to base fiscal policy on the erosion of expenditure under the present path also jeopardizes the possibility of reducing the deficit and the debt because of the difficulty of contending with this erosion. Moreover, under the present legislation, and in particular in view of the new expenditure rule proposed by the government, there is a gap between the deficit derived from the expenditure and tax rates path, on the one hand, and the deficit ceiling set by law, on the other. Hence, without significant and prolonged acceleration of GDP growth, meeting the deficit target will require the substantial curtailment of the expansion of expenditure or the cancellation of the tax reductions that have been legislated. Unless steps of this kind are taken, the danger exists that the debt/GDP ratio will not be significantly reduced in the medium term, and hence long-term interest rates will be higher; adversely affecting economic growth.[48] Note that even given a path in which expenditure increases in accordance with the new rule, its growth rate in the next five years is fairly moderate, and the government's ability to adhere to it depends to a great extent on utilizing the unexpected expansion of resources in the 2011 budget, delineated above, to close the gap between the cost of its long-term plans and the level of expenditure permitted by law, as well as implementing additional measures to close the gap in and after 2012.

Average growth of slightly more than 5 percent during the period 2011 to 2014 will make it possible to reduce taxes, to increase expenditure according to the new rule up until 2014 and to still remain under the deficit ceiling and significantly reduce the debt to GDP ratio.

Naturally, the results of the paths described above depend on GDP growth in the period concerned: more rapid growth makes it possible to increase expenditure and reduce the debt/GDP ratio even with the tax cuts determined by law, while slower growth could cause the debt/GDP ratio to rise even more in the paths examined here. With an average growth of slightly more than 5 percent annually between 2011 and 2014 it will be possible to implement the tax cuts, increase expenditure in accordance with the new rule until 2014, and still meet the deficit ceiling and significantly reduce the debt/GDP ratio. On the other hand, if per capita GDP grows between 2010 and 2014 at a similar rate to its long-term average, it will be necessary to reduce per capita primary civilian expenditure by 6 percent in 2010–14 in order to meet the deficit ceiling, provided the tax reductions are effected. Since in the last few decades Israel's long-term growth rate (per capita or per working-age individual) has been quite stable and similar to that in the developed countries, it is important to resist the temptation to raise the long-term growth forecast in the wake of the short-term acceleration of

[48] According to H.Ber. A. Brender, and S. Ribon (2003), see note 38 above. An increase of 1 percent of GDP in the seasonally-adjusted deficit increases long-term interest rates by 0.4 percentage points. Similar findings are presented in IMF Fiscal Monitor (2009), where the negative effect on growth of a high debt/GDP ratio is analyzed.

GDP growth which may be recorded in the next few years as the output gap which emerged during the crisis is closed. This is particularly relevant in the current global environment where the medium-term risk balance leans towards lower growth more than in previous periods[49]. It should also be noted, that reforms sustaining growth have been implemented in Israel in previous decades and contributed (significantly) to the economic expansion achieved. Consequently, it is not clear that the adoption of growth-sustaining reforms in the next few years will raise the long-term growth rate in Israel above its past level; such reforms are required, first of all, in order to return to the growth rate attained in the past.

Box 6.1
The elasticity of government-services wages and employment to business cycles

In Israel almost 30 percent of the labor force is employed in the government services,[1] the majority of it in the public sector, and most of the rest are appointed by it.[2] Since the public sector is Israel's largest employer it is also the most important in several respects: (i) The effect on the fiscal aggregates – in 2008 total expenditure on civilian wages in the public sector, excluding imputed pension payments, was 10 percent of GDP, so that changes in wages in this sector have a significant fiscal effect in the short term. (ii) Because of its extent, public-sector wage expenditure has an effect on other macroeconomic variables, including private consumption, and this can moderate or exacerbate business cycle shocks. (iii) Employment affects unemployment, and hence wages in the private sector.[3]

In this box we examine how wages and employment in the public services in Israel responded to business cycles in the last twenty years[4] compared with the private sector. We found that public services wages responded in a pro-cyclical manner while employment in the public services was not affected by the state of economic activity.

[1] Excluding conscripts and soldiers in the regular army.

[2] A considerable part of employees in public services are not in the public sector but in the private sector, due to the extensive privatization of public-sector companies in recent years.

[3] It was found that the increase in return to education in the public sector at a similar rate to that in the private sector between 1995 and 2005 prevented the shift of educated workers from the public to the private sector, but did not prevent relatively educated workers from moving from the private to the public sector. Mazar (2009) "An Examination of Wage Structure in the Public and Private Sectors, and Self-Selection of Employees Moving from One Sector to the Other in 1995–2005," Discussion Paper 2009.09, Bank of Israel .

[4] We chose to go deeper into this period as it came after the inflation rate slowed and the economy stabilized, and incorporates several business cycles.

[49] See Box 1.1 in: OECD (2010), Economic Policy Reforms: Going for Growth.

The variables we examined are characterized by an overall upward trend (i.e., they are not stationary); consequently, we examine the statistical connection between them by means of rates of change.

The table below gives the annual average growth rates of per capita GDP, real wages, and the number of persons employed in the private sector and the public services, in accordance with the way business cycles are usually described in the literature.[5]

Table 1
Average Annual Growth

(percent)

			Real wage			Employees	
		GDP per capita	Public services	Public administration	Private sector	Private sector	Public services
1988-1989	Recession	0.8	4.9	2.1	1.5	1.6	3.1
1990-1995	Growth	2.7	3.0	4.0	-0.9	5.2	4.7
1996-1999	Recession	1.4	0.6	0.8	2.9	1.6	3.3
2000	Growth	6.2	6.6	2.1	5.3	4.6	2.6
2001-03	Recession	-1.9	-2.0	-0.5	-2.1	1.0	3.0
2004-07	Growth	3.4	1.9	1.8	1.7	4.1	2.4
2009	Recession	-1.1	-0.7	-1.4	-2.3	0.1	0.5

SOURCE: Based on Central Bureau of Statistics data.

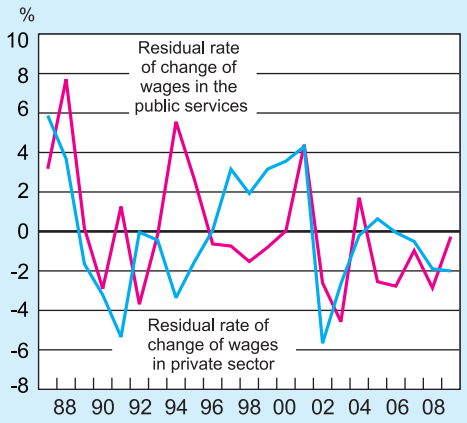
Wages in the government services

During the first downturn wages in the government services rose relatively steeply, and the cost-of-living allowances (COLA) succeeded in maintaining its level despite the relatively high inflation rates prevailing at that time. In the subsequent period of growth the real wage in the government services rose in line with per capita GDP growth, largely due to the public sector wage agreements signed towards the end of the period. In the private sector, on the other hand, the real wage was eroded, apparently because of the excess supply of workers due to the influx of immigrants. The gradual absorption of the immigrants in the labor market led to a rise in the real wage in the private sector during the downturn in 1996–99. Wages in the government services rose only moderately during this period. In 2000 wages in both the government services and the private sector rose steeply, together with high per capita GDP growth. The reverse occurred in

[5] In Israel three downturns (1988–89, 1996–99. and 2001–03) are identified during the period reviewed, as well as the contraction of per capita GDP in 2009, which was considered a recession year. Note that in accordance with the retrospective updating of the data, the recession of 1996–1999 was less deep than was realized at the time.

the 2001 and 2003[6] downturns. In the 2004 to 2007 period of growth the average wage in both sectors rose at similar rates, significantly below the growth rate of per capita GDP. In 2009 the real wage declined, primarily in the private sector. These trends endorse the view that in the last twenty years the sensitivity of wages in the government services to the development of per capita GDP has been very high, and possibly even surprisingly so, especially in the last decade.

Residual Rates of Change of Wages in the Public Services and the Private Sector, 1987-2009



SOURCE: Bank of Israel.

The figure shows the residual rates of change of wages in the government services and the private sector from two regressions in which the independent variable is the rate of change of per capita GDP. The figure illustrates the foregoing, namely, that a positive residual reflects a higher than expected rise in wages, and vice versa. Taking into account the elasticity measured on the basis of past data between rates of change, and given the 1.1 percent decline in per capita GDP in 2009, the real wage in the private sector should have contracted by 0.3 percent, and in government services by 0.4 percent, this year. In both sectors, particularly in the private sector, it declined by more than expected.

The elasticity of wages in the civil service was also examined[7] (see Table 1). Here, too, a strong positive correlation was found between the average real wage and the change in per capita GDP, but this correlation is slightly weaker than that found between the real wage in all the public services and the change in per capita GDP.

Employment in the government services

The picture with regard to employment is completely different. Table 1 shows that employment in the private sector was in step with the development of per capita GDP, while the development of employment in the government services

6 The wage is the gross wage, so that the growth levy is taken into consideration.

7 The advantage of using this group of employees is that they are employed solely by the government, and hence we can be sure that they do not work in the private sector. This is in contrast to total employees in government services, who are identified by the sector in which they work, and this does not distinguish precisely between those in the private and public sectors.

was acyclic. This means that no link was found between the number of persons employed in the public services and the general economic situation.

Table 2 shows the correlation coefficients between the rates of change of the variables examined, and provides statistical confirmation of the data. Relatively high correlations were found between the changes in the real wage in the private and public sectors, and especially the government services, on the one hand, and the change in per capita GDP, on the other. There was a high correlation between employment in the private sector and the change in

Table 2
Coefficient of Correlation of Rates of Change

	GDP per capita	Real wage in public services	Real wage in business sector	Employees in private sector	Employees in public services	Real wage in public administration
GDP per capita	1.00					
Real wage in public services	0.54	1.00				
Real wage in business sector	0.51	0.52	1.00			
Employees in private sector	0.56			1.00		
Employees in public services	-0.15			0.09	1.00	
Real wage in public administration	0.42	0.74	0.26			1.00

SOURCE: Based on Central Bureau of Statistics data.

per capita GDP, compared with the absence of any prominent correlation with employment in the government services. Finally, there was a high correlation between the change in wages in the government services and that in the private sector. Note that the link is greatly reinforced when the change in the nominal wage is examined – where the correlation coefficient is 90 percent.

Correlation coefficients of rates of change

Finally, it was found that in the last twenty years wages in the government services were very elastic, and were rapidly affected by shifts in economic developments. This finding differs from those regarding other countries with regard to the cyclical relations between wages in the private and public sectors.

As is the case with the developed countries, the ratio between employment in the private and public sectors is cyclical. Thus, for example, the ratio declined in those countries in 2008, when there was a recession.

Box 6.2
The elasticity of tax receipts during the crisis

The state of Israel's economy at the start of the real economic crisis which erupted in the second half of 2008 with regard to the vulnerability of tax receipts to changes in GDP was worse than that of the OECD countries. The elasticity of tax receipts in Israel to GDP (the rate of change of tax receipts *divided by* the rate of change of GDP) was 3.1 during the crisis, far higher than its long-term level, and significantly above the OECD average of 2.1 (see table below). The greater elasticity of taxes reflects the rise in corporate taxes from the financial sector as a result of the Bachar Reform, a large part of which is permanent. On the other hand, the process of reducing direct taxes, which began in 2003 and continued during the period of the crisis, served to reduce the elasticity of taxes, although its effect was smaller.

The high elasticity of taxes to GDP led to the sharp reduction of the tax burden in Israel, outstripping the average decline in the developed countries, where the tax burden dipped from its peak by an average of 4.2 percent, whereas in Israel it fell by 5.2 percent. There was a sharp drop in tax receipts in Spain, Denmark, and Sweden, the two last being affected by the crisis in Iceland, while in Spain the decline was due to the serious domestic crisis. In Italy, Germany, and Hungary, by contrast, tax receipts declined hardly at all in real terms (see table).

The relative easing of the tax burden in Israel stemmed from the steep reduction of taxes, at a rate similar to the average in the OECD countries, while GDP did not decline. The real fall in receipts in Israel was similar to that of its peers in the developed countries (controlling for differences in the timing of entry into the crisis). In the OECD countries it declined in real terms by an average of 20 percent and in Israel by 17 percent.[1]

The sharp shifts in the tax burden in the last two years reflect the elasticity of the various taxes to the tax bases and the changes in the composition of these bases, particularly the decline in imports. **The elasticity of taxes to GDP** depends on the composition of the tax bases (primarily wages, employment, private consumption, and imports). Girouard and André (2005) estimated the elasticity of tax receipts to GDP in the OECD countries and found that the

[1] Tax receipts change in accordance with seasonal domestic factors, such as holidays, working days, strikes, and other seasonal factors in each country. For the purposes of the comparison, the real rate of change of total tax receipts of the central government was calculated for each country, for each quarter vis-à-vis the equivalent quarter in the preceding year. The comparison included Israel and twenty-one OECD countries. The countries not included in the comparison (because of the lack of data) were Austria, Iceland, Belgium, Greece, Luxembourg, Norway, New Zealand, Poland, and Portugal. The data were based on data from the IMF and OECD.

The Real Change inTax Revenues and GDP, the Change in the Tax Burden, and the Elasticity of Tax Revenues to GDP in Booms and Recessions, Israel and the Advanced Economies

		(rate of change,[a] percent)			
	Lowest point	Real taxes	Real GDP	Tax burden	Short-term elasticity of taxes
Australia	2009:Q1	-12	-0.3	-4	1.3
Italy	2008:Q4	-7	-4.8	-1.8	2.6
Ireland	2008:Q4	-26	-9.3	-6.1	0.1
UK	2009:Q1	-12	-	-	-
US	2009:Q2	-23	-	-	-
Germany	2009:Q2	-5	-6	-0.5	0.5
Denmark	2009:Q1	-35	-8.7	-12.5	1.4
The Netherlands	2009:Q2	-37	-6.8	-8.7	4.3
Hungary	2009:Q3	-3	-6.8	0.8	1.6
Turkey	2009:Q3	-11	-10.2	-1.3	0
Japan	2009:Q2	-27	-8.5	-2.9	2.3
Mexico	2009:Q2	-10	-12.3	-0.5	1.4
Slovakia	2009:Q2	-14	-9.7	-1.9	3.7
Spain	2009:Q2	-45	-4.5	-6.1	19.3
Finland	2009:Q2	-22	-8.5	-4.1	3.2
Czech Republic	2009:Q3	-15	-3.2	-3.5	0.7
France	2009:Q1	-26	-2.2	-3.9	29.7
S. Korea	2008:Q4	-21	-5.3	-4.8	2.9
Canada	2009:Q3	-15	-	-	-
Sweden	2009:Q3	-35	-4.7	-11.2	3.5
Switzerland	2008:Q3	-17	-1	-2.9	3.5
OECD average[c]	-	-20	-6.3	-4.2	2.13
Israel	2009:Q1	-17	-0.1	-5.2	3.1

[a] The real rate of change in tax revenues between the lowest point in the same period in the previous year relative to the change in GDP in the same period with a one-quarter lag.

[b] The lowest point is defined as the quarter in which real tax revenues fell most steeply relative to the same period in the previous year.

[c] The simple average of the countries excluding France and Spain, 16 countries in total. The median elasticity, including France and Spain, was 2.5 percent.

SOURCE: Based on Government Financial Statistics (GFS) IMF and OECD.

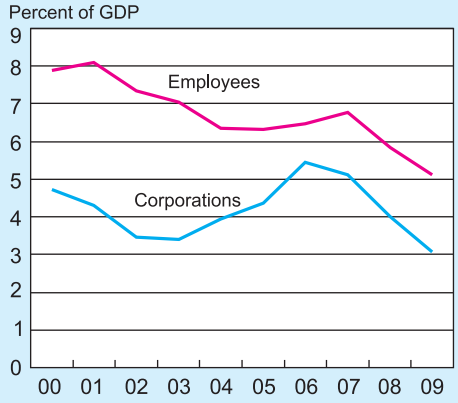
elasticity of corporate taxes is the highest—1.5, that of income tax is 1.25, and that of indirect taxes is 0.9. These results are in line with other studies (Larch and Turrinin, 2009; van den Noord, 2000; Giorno et al., 1995), according to which the elasticities of direct taxes are above unity as they are progressive, and that of indirect taxes is slightly lower than unity as they are regressive. The tax elasticities estimated for Israel are similar to those described in the international literature. Slobodnitzky and Drucker (2006) estimated the net corporate tax

receipts equation relative to GDP in Israel and found that it is 1.6, in the short run. Brender (2001) undertook a similar analysis and found that the elasticity of gross corporate tax receipts to GDP in Israel is, as expected, significantly greater than unity (1.7), and that the elasticity of VAT tax receipts to GDP is less than unity (0.8).

The elasticity of taxes to the tax base depends on the structure of the tax system. The elasticity of relative taxes will be unity, but if there are several tax brackets the elasticity of tax receipts to the base can be greater than unity (a progressive tax), or lower than unity (a regressive tax). Income tax is progressive, as the tax brackets rise with taxable income; National Insurance contributions are also a progressive tax—a relative tax that has one bracket—but it is limited by a ceiling, thereby reducing its progressive nature.[2] Corporate tax is imposed on profits at a uniform rate, so that the elasticity of tax receipts to company profits is unitary. On one hand, general taxes on consumption (ad valorem taxes), such as VAT, purchase tax, and property taxes, can incorporate progressive components because higher tax rates are imposed on goods whose elasticity to income is higher. On the other, specific taxes are generally regressive relative to the tax base because they tend to be absolute.

The process of cutting direct taxes, whose elasticity to GDP is significantly above unity, should have reduced the share of these taxes on individuals and firms in all tax revenues, thereby reducing the vulnerability of tax receipts to changes in GDP (variance). In the wake of the recommendations of the Rabinowitz Commission (June 2002) the government decided to gradually cut personal income tax and corporate tax—taxes whose elasticities to GDP is greater than unity. The marginal tax rate on employed persons (income tax, National Insurance contributions, and health insurance tax) has been gradually reduced from 60.3 percent in 2003 to 58 percent in 2009, and the tax brackets have been widened. By 2016 the marginal tax on labor is expected to fall to 51 percent. Concurrently, corporate tax, which was 36 percent in 2003, has been

Revenues from Corporate Tax[a] and Employees'[b] Income Tax as Percent of GDP, 2000-09



[a] Tax revenues from corporations and self-employed, and VAT from financial institutions.
[b] Income tax from employees and company managers.

SOURCE: Israel Tax Authority.

[2] In the 2009–2010 budget the ceiling was raised under a provisional directive until the end of 2010.

gradually reduced to 25 percent in 2009, and according to a government decision it is expected to decline to 16 percent in 2016. In addition, tax benefits for firms, in the framework of the Encouragement of Capital Investments Law, were substantially increased in 2005. The tax basis was also changed in order to ease liability to tax: thus, the way depreciation and inflation indexation were calculated for tax returns were altered along with the definition of taxable income. For example, VAT on financial institutions was recognized as expenditure that reduces tax liability.

Together with the process of reducing taxes since 2003, corporate tax receipts have risen appreciably, beyond their cyclical increase. Until 2007 the increase fully offset the effect of the reduction of direct taxes, to the level of the total elasticity of taxes to GDP (see figure above).

The sharp rise in corporate tax receipts, even though the statutory tax rate has fallen, stems inter alia from the reform of the capital market, which caused corporate tax receipts from the financial sector to accelerate.[3] The share of these receipts in total direct taxes doubled within four years, rising from 6 percent in 2003 to over 12 percent at their peak in 2007:Q1. The steep increase in corporate tax receipts from the financial sector reflects the structural changes in the financial markets in the wake of the Bachar Reform. These were expressed in high one-off revenues from the sale of the provident and pension funds, which temporarily increased the variance of tax revenues, as well as in the permanent expansion of corporate taxes from this sector as a result of the hike in management fees on medium- and long-term savings.

Sources:

Larch, M. and A. Turrini (2009). "The Cyclically-Adjusted Budget Balance in EU Fiscal Policy Making: A Love at First Sight Turned into a Mature Relationship," European Commission.

Giorno, C., P. Richardson, D. Roseveare, and P. van den Noord (1995), "Potential Output Gaps and Structural Budget Balances," OECD Economic Studies, no.24.

Girouard, N. and C. André (2005). "Budget Balances for OECD Countries," OECD Economics Department, Working Papers, no.434.

Van den Noord, P. (2000), "Stabilizers in the 1990s and Beyond," OECD Economics Department, Working Papers, no.230.

Slobodnitzky T. and L. Drucker (2006), "Corporate Tax in Israel: A Model for Forecasting Receipts," *Tax Quarterly*, no. 126 (Hebrew).

Brender, A. (2001). "Estimations of the Function of Tax Receipts in Israel," Bank of Israel Discussion Paper, no. 2001.02 (Hebrew).

[3] The banking system, insurance, and the other financial institutions.

Box 6.3
Deviations from estimated costs and completion dates in transport projects

The government recently approved a comprehensive long-term project to upgrade the transport infrastructure, including the investment of billions of shekel over the next decade in roads and railways. Because of the size of the investment and the time scale during which it will affect the national budget, it is important to examine the extent to which it will be possible to attain the targets and fulfill the assessments on which the financing of projects of this kind is based. In order to assess the risk to the budget framework in the next few years as a result of the plan, we examine whether projects in the sphere of transportation in Israel cost significantly more than planned, and take longer than expected to implement. The principal findings are as follows:

- In 64 percent of infrastructure and transport projects in Israel the cost of the project was above the initial estimate, and in 82 percent of them the completion date was later than the original date.
- The final real cost was 31 percent higher, on average, than the original budget, and in large projects the difference was 45 percent. The average delay was 64 percent of the original time estimated for the project.

Each year the Ministry of Transport's budget proposal contains allocations for constructing transport infrastructure. The budget proposal contains details of the main projects and estimates of their total cost.[1] This box examines the projects which appeared in the budget proposals for 1998–2009, and tracks the changes in the cost and time estimates of projects once they are under way.[2] The changes in the estimates were examined from the time the project first appeared in the budget book until its final appearance in it. This is an underestimate of the deviation in costs and time from the decision to build, as the projects' budgets are examined and updated also at the stage between the initial decision to implement them and their inclusion in the budget.

In this box the cost estimates which appear in the budget books have been converted to constant prices in accordance with the accepted indices for the various kinds of projects.[3] Conversion in accordance with the CPI would significantly increase the real change in the cost estimate. While the relative increase in the price of road-building and construction inputs does not represent a technical departure from the plan, its intensity over the last decade exemplifies another risk to the budget framework deriving from the changes in relative prices, as income in the budget is in line with consumer prices. Note that many projects appear for the first

[1] The analysis does not include the light railway in Jerusalem and Tel Aviv or the Cross-Israel Highway, because of a lack of data.

[2] Only those projects regarding which estimates of costs, starting year, and expected completion exist were included in this study. Adding projects which have only a cost estimate increases the sample by 40 observations and does not significantly alter the results.

[3] In this box the various road projects have been converted to constant prices according to an index comprising the index of road-building inputs (80 percent) and the index of residential construction inputs (20 percent), in accordance with the customary indexation of road projects. The railway projects have been converted to constant prices in accordance with the index of residential construction inputs, as is customary with railway projects.

time in the budget book only several years after they have begun, and that the fact that a project disappears from the books, and hence from continued follow-up in this box, does not necessarily mean that it has come to an end. For these reasons, the changes in the estimates described below are underestimations: they do not express the entire period of a project's implementation even after it has been included in the budget.

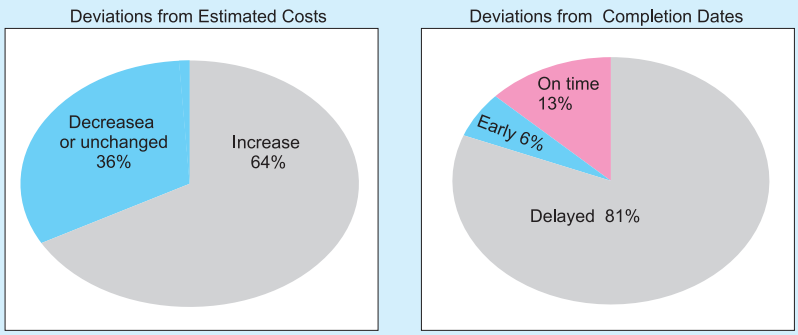
Let us take, for example, the fast train to Jerusalem (A1), which is the largest project in the sample (all the data are converted to December 2009 prices). The project appeared in the budget for the first time in 2004, at an overall cost of NIS 4 billion, with completion expected at the end of 2008:Q4. Its reported cost did not change in 2005 and 2006, rose to NIS 5 billion in 2007, to NIS 5.3 billion in 2008, and to NIS 6.7 billion in 2009. In 2009 its expected completion was in 2016:Q1. All in all, the total cost rose by 69 percent in five years, and the project is still a long way from completion.

There may be many reasons for the changes in the costs and delays described, such as unexpected changes in prices of primary commodities, mistaken estimates, results of tenders, additions and/or improvements to the project, changes in policy and priorities, errors in planning, legal claims brought by or against the government, changes in the planned path, and unexpected land expropriation problems. Consequently, departures from the original plan do not express only higher than planned costs, but often also an improvement in the final product. This is not an attempt to justify the bias of the estimates, but merely to describe them, and the deviation from the original plan is examined as regards its effect on the budgetary cost alone.

A comparison of the costs of the projects with the budget shows that in 64 percent of cases the final cost estimate was higher than the initial one (Figure 1). When the costs are adjusted for the CPI, the proportion of projects whose costs are higher than planned reaches 72 percent. The average increase in real terms in the cost of projects relative to the initial estimate was 31 percent, and when the costs are adjusted for the CPI the average cost rises by 46 percent (Table 1). The total cost of the projects examined here was NIS 37 billion in the initial estimate, and NIS 53 billion in the final one (at 2009 prices adjusted for the CPI). The analysis of the time taken for the projects shows that in 81 percent of them the final expected completion date given in the budget books was later than the planned date when the project first appeared in the budget books (Box 3, Figure 1). The extent of the deviation in the projects' completion time averaged 64 percent of the time given in the original estimate. An examination of the projects by sphere shows that the departures in price were relatively small for urban highway projects (which in many cases are smaller in extent and are implemented in conjunction with the local authorities) and for the railway.

An examination of the projects by extent of investment (Table 2) shows that the deviations were greatest in the largest projects, as regards both time and cost. It was found that in projects whose initial cost estimate was less than NIS 100 million the real average deviation in costs was about 11 percent, while in the large projects, which encompassed most of the infrastructure expenditure and involved costs of over NIS 100 million each, the average deviation was 45

Deviations from Estimated Cost and Completion Dates in Transport Projects



a The decreases are relatively small, 14 percent on average.

percent (and 66 percent when adjusted for the CPI).[4] The smaller projects are also characterized by a smaller extension of the time involved over the original plan.

Table 3 shows the link between the amount of time beyond the original time-frame and the rise in the cost estimate. As expected, a positive correlation was found between the two: projects that take longer than originally planned also cost more. The combination with the findings in Box Table 2 also shows that these projects will usually be the largest ones, in which there is a link between the delay in completion and increased costs.

The findings with regard to Israel can be examined from an international perspective, analyzing similar projects in other countries. In a study encompassing 256 transportation projects undertaken in 20 countries and completed between 1927 and 1998 it was found that in 86 percent of them actual costs were higher than the estimate (at constant prices), and that on average, for all the projects, the cost rose by 28 percent. For roads the average difference between the initial estimate and the actual cost was about 20 percent, and for railways it was about 45 percent. It was also found that the problems involved in estimating costs have not diminished in the last 70 years. The cost estimates of the projects were measured in the aforementioned study from the formal start of the project, which generally preceded the budgetary procedure, so that the probability of underestimation is lower than it is for Israel. Another study, this time from Portugal, showed that the actual time taken by construction projects (not only in transport infrastructure) was 40 percent greater than originally expected, and that the final costs were 12 percent above the initial estimate.

[4] In extremely large projects of over NIS 1 billion we did not find a greater average increase in costs than in the other large projects.

Table 1
Changes in estimates

	Variable	Percent	Observations
All projects	Increase in cost estimate	31	196
	Deviation from original completion time	64	196
Intercity roads	Increase in cost estimate	42	95
	Deviation from original completion time	64	95
Urban roads	Increase in cost estimate	21	60
	Deviation from original completion time	59	60
Railway lines	Increase in cost estimate	16	29
	Deviation from original completion time	72	29
Public transport routes	Increase in cost estimate	33	12
	Deviation from original completion time	63	12

[a] Simple average of all projects, including those whose costs did not change or fell. The incerase in costs shown are in real costs, adjsuted by price indices as described in footnote 3 in this Box.
SOURCE: Based on Israel's Budget Books for 1998–2009.

According to these findings it is difficult to state unequivocally whether the extent of the increase in costs in Israel is greater than is accepted in other countries or not. It is true that the average rate at which the cost of Israeli projects grows, 31 percent, is similar to that found elsewhere, but the bias towards an underestimation in our analysis regarding Israel is stronger than in the research undertaken abroad. Furthermore, in the large projects (over NIS 100 million), which encompass most of the total costs, the deviation in Israel is greater, and reaches 45 percent of the original cost estimate, far greater than the deviation abroad. Be that as it may, whether the divergences in Israel are similar to those in the rest of the world or greater than them, it is clear that the budgeting of large transportation projects tends towards underestimation to an extent that is significant in macroeconomic terms.

Table 2
Changes in Estimated Costs and Completion Time, by Size of Project
(estimated final cost, at December 2009 prices)

	Adjusted for the CPI		Adjusted by other price indices[a]	
	NIS 100 million and above	Less than NIS 100 million	NIS 100 million and above	Less than NIS 100 million
Increase in estimate (%)	66	27	45	11
Number of observations	93	103	110	86
Delay from original completion time (%)	77	51	73	51
Number of observations	93	103	110	86

[a] See footnote 3 in this Box.
SOURCE: Based on Israel's Budget Books for 1998–2009.

Table 3
Changes in Cost Estimates by Percentage Delay from Original Completion Time
(estimated final cost, at December 2009 prices)

	50 percent or more	*of which* 150 percent or more	Less than 50 percent
Increase in cost estimate	46	89	13
Number of observations	99	23	97

SOURCE: Based on Israel's Budget Books for 1998–2009.

SOURCES

B. Flyvberg, M.K.S Holm. and S.L.Buhl (2003), "How Common and How Large are Cost Overruns in Transport Infrastructure Projects?" *Transport Reviews*, 23, no.1, 71–88.

Moura, H.P., J.C. Teixeira and B. Pires (2007), "Dealing with Cost and Time in the Portuguese Construction Industry," *Construction for Development: Proceedings of the CIB World Building Congress*.