

# The Change in the Tax Burden on Households Between 2003 and 2011

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Moshe Hazan\*

## *Abstract*

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*This chapter assesses the change in the tax burden on households across the various income deciles during the period between 2003, the fiscal policy “watershed” year, and 2011. In both 2003 and 2011, the direct tax burden, defined as the ratio of tax imposed on income to gross income, increases along with income. By contrast, the indirect tax burden, defined as the ratio of tax imposed on consumption to net income, declines along with income. Moreover, in the two years examined, the total tax burden, defined as the ratio of tax paid to gross household income, declines between the bottom decile and the second decile, remains almost unchanged up to Decile 7, and then rises. In 2011, the total tax burden on households in all income deciles was lower than in 2003, but the decline was uneven. The tax burden declined more substantially at the extremes of the income distribution, i.e., in the lowest and highest deciles – meaning that it became more uniform between households. In absolute terms, households in the lower deciles (Deciles 1 to 5) benefited from a tax burden reduction of NIS 130 to NIS 430 per month, while households in Deciles 8 to 10 had a reduction of NIS 800 to NIS 2,500 per month. The fact that direct taxes became less progressive between 2003 and 2011 and served to maintain, and in fact widen, net income disparities between households.*

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## *Introduction*

Public debate in Israel often centers on the erosion of the middle class and the argument that the economic status of the weaker groups in society has worsened. Government has a role to play in this and its policy can affect the welfare of all households and all population strata, primarily through government spending and the tax system. Earlier works have documented the steep decline in government spending in Israel since 2003 and pointed to the subsequent weakening of the lower income strata. This chapter will address the impact of taxation policy, that is, of government revenue, on Israeli households. The chapter looks at the change in the tax burden by household income deciles that occurred between 2003, the “watershed” year in terms of Israeli fiscal policy, and 2011. The main findings are that all households have benefited from a reduction in the tax burden, but that the three highest income deciles experienced a more substantial easing of the burden, in both relative and absolute terms.

Two earlier works examined the tax burden by income deciles. Bibi-Kersai (2005) looked at the total tax burden and its distribution between direct incidence (the ratio of tax imposed on income out of gross income) and indirect incidence (the ratio of tax imposed on consumption to net income); however, her study only examined data from 2003. Strawczynski (2015) also looks at the tax burden for the years 2001 and 2012, dividing households by income deciles; but his study focuses on the question of what type of tax policy is desirable for the coming decade through the prism of growth. This chapter seeks to complete the picture exploring the impact of taxation policy on households in the various income deciles.

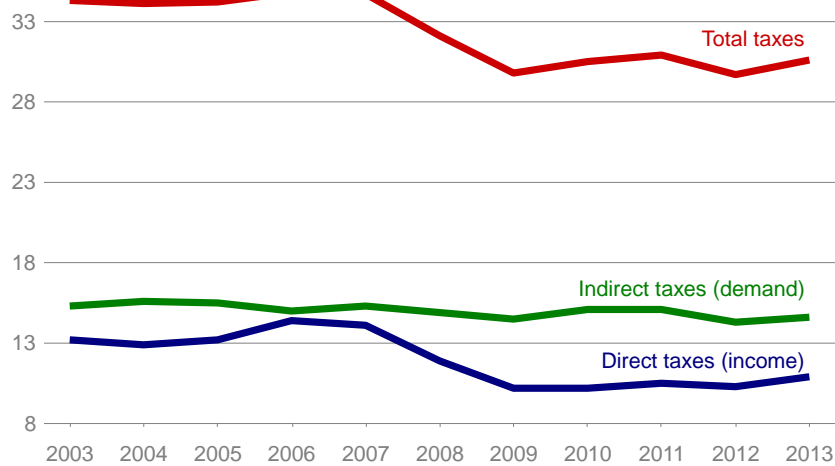
## ***1. Development of the Tax Burden in Israel During the Period 2003-2013: A Macro Picture***

As noted, government policy affects citizens' welfare in a number of ways. First, total government spending and its distribution affect the welfare of population groups differentially. Second, the government can affect the welfare of different groups through regulation. A third means of influence is that of tax rate and mix.

During the past decade, the state budget as a share of GDP has declined from 50.2 percent in 2003 to 41.3 percent in 2013. Hazan and Dahan (2014) performed an extensive analysis of the budget changes and of the change in government spending composition between 1995 and 2009. The picture that emerges from their study shows that the steep drop in the government's share of GDP started in 2003 and points to a major decline in the level of public service, with the harshest blow dealt to social service spending. This decrease had the greatest impact on the lower socioeconomic strata.

Alongside the decline in government spending, total tax revenues collected by the government decreased. Figure 1 shows that between 2003 and 2013 there was a decline in the tax incidence, defined as the ratio of tax collection as a share of gross domestic product (GDP) – from 34.3 percent in 2003 to 30.9 percent in 2011 and 30.6 percent in 2013.

Figure 1  
**Total revenue as percent of GDP**  
 by tax type,\* 2003-2013



\* Payments to the National Insurance Institute are not included in direct taxes, because of the OECD's calculation method, but they are taken into consideration as a part of total taxes

Source: Moshe Hazan, Tel Aviv University and Taub Center

Data: OECD

It is commonly believed that tax reductions favor society's more affluent, as they pay most of the taxes. Government spending favors the public at large with, perhaps, special emphasis on less affluent populations, given that some services, such as welfare payments and housing assistance, are intended specifically for them. Furthermore, tax composition also plays an important role in this context. Direct taxes on income are progressive, that is, the rates go up along with income. Thus, most of the direct tax burden falls on the higher-income levels. Indirect taxes, by contrast, are imposed on consumption. Given that the weaker socioeconomic groups spend most – and sometimes all – of their income on consumption, these taxes tend to be regressive: households in the lower income deciles bear a higher indirect tax burden than do the more

affluent. Therefore, to examine the impact on households by income deciles, a distinction between direct and indirect taxes must be made.

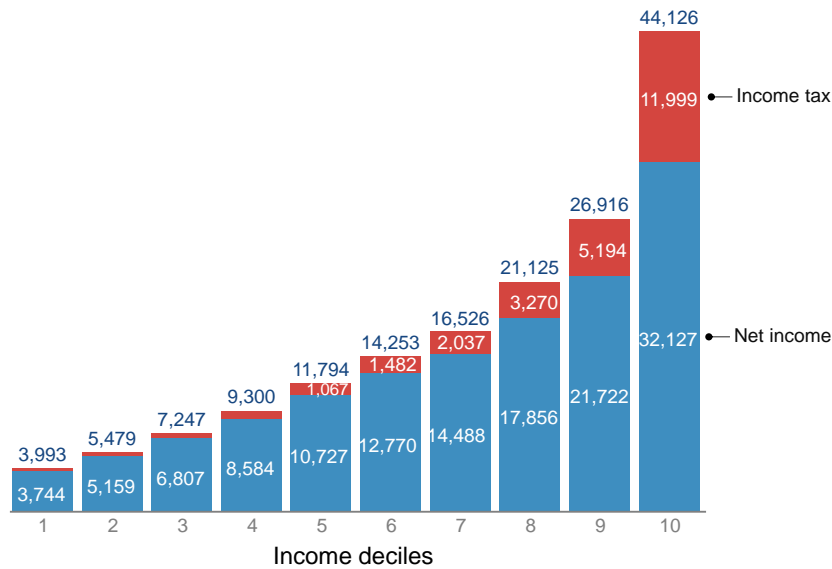
As can be seen in the figure, income tax rates declined in the 2000s, and their share of GDP dropped from 13.2 percent in 2003 to 10.9 percent in 2013. The average marginal tax rate on income from labor declined from 31 percent in 2003 to 19 percent in 2011 (Hercowitz and Lifschitz, 2015). Other changes in direct tax policy were made in accordance with recommendations of the Committee on Socioeconomic Change (the Trajtenberg Committee). In particular, a 2 percent surtax was imposed for the first time on the higher tax brackets – those with particularly high incomes (over NIS 800,000 in 2012) from all sources. Additional credit points were also given to fathers of children under age 3. Kimhi and Shraberman (2012) demonstrate the impact of these changes on the tax burden borne by the various income deciles. For example, the direct tax burden borne by the three lowest income deciles was not affected by the changes at all. By contrast, the direct tax burden on higher deciles rose slightly: less than 0.2 percentage points for the fifth decile and nearly 1.2 percentage points for the highest decile, due mainly to the surtax.

Alongside the taxes on income, Figure 1 displays the indirect taxes. The figure shows that even these taxes declined during the period in question, although the drop is more moderate: from 15.3 percent of GDP in 2003 to 15.1 percent in 2011 and 14.6 percent in 2013.<sup>1</sup>

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<sup>1</sup> The total tax is composed of income tax, indirect taxes and payments to the National Insurance Institute. National Insurance payments declined from 5.8 percent of GDP in 2003 to 5.1 percent in 2013. In calculating the household tax burden for this chapter, payments to the National Insurance Institute were added to income tax and together they constituted direct taxes.

Figure 3  
**Monthly income and income tax, 2011**  
 by household income decile, shekels, 2011 prices



Source: Moshe Hazan, Tel Aviv University and Taub Center

Data: Central Bureau of Statistics, *Household Expenditure Surveys*

Thus, the data presented in Figure 1 indicate an overall decline in the tax revenues collected, and an even larger reduction in direct tax compared with indirect tax revenues. This macro picture supports the argument that the decrease in the tax burden mainly benefited the socioeconomically stronger groups. However, these aggregate figures do not enable a clear identification of the primary beneficiaries of the change in the tax mix. Moreover, they do not allow a quantification of the change in the tax burden among population groups. The following section will address this issue in greater depth.

## ***2. Distribution of the Tax Burden Among Income Deciles, 2003 and 2011***

This section looks at how the tax burden on households in the various income deciles<sup>2</sup> changed between 2003 and 2011. The year 2003 was chosen because it marked the start of major cutbacks in government spending, while 2011 was chosen as representative of the present.<sup>3</sup> This type of analysis poses a methodological problem: while the direct taxes that households pay are easy to determine through Central Bureau of Statistics' household income and expenditure surveys, estimating indirect tax payments is not a simple matter. The reason for this is that a distinction must be made between expenditures that are subject to value added tax (VAT) and those that are not, and it must be determined whether a given expenditure is subject to sales tax, and if so – at what rate. Moreover, the country of origin of the goods purchased is not known, and therefore it is also not known whether a given expenditure included import taxes or not.

In order to overcome these problems, the assessment of indirect tax incidence in this chapter employs a methodology that was developed by Bibi-Kersai (2005).<sup>4</sup> The main goal of this chapter is to describe the

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<sup>2</sup> Throughout this chapter, households are assigned to deciles based on gross income per standardized person (after deducting income from housing and vehicle). The weighting is that used by the Central Bureau of Statistics.

<sup>3</sup> The latest spending survey available at the time this chapter was written was for 2012. However, the social justice protests that led to changes in government policy broke out in the summer of 2011 – and an examination of the taxation situation a year before the protests reflects the policy that led to the protests. Thus, the data chosen for comparison purposes are from 2011, not 2012.

<sup>4</sup> First, spending on goods and services subject to VAT was calculated, then multiplied by the statutory tax rate for each of the variables. Then spending on alcohol, tobacco, fuel, and motor vehicle purchases was calculated, and the result for each item multiplied by the mean tax rate for each category. The

change that occurred in the tax burden by income decile during this period, and to identify the primary beneficiaries of the change in Israeli tax policy.

### *Direct Tax Burden*

Figure 2 presents household income (gross and net) and total direct taxes by income deciles for 2003 (at 2011 prices).<sup>5</sup> It can be seen that the direct tax increases sharply along with income. Up to Decile 5, the total direct tax ranges from NIS 250 to NIS 1,200, while from Deciles 6 to 10 it ranges from NIS 1,600 to NIS 13,000.

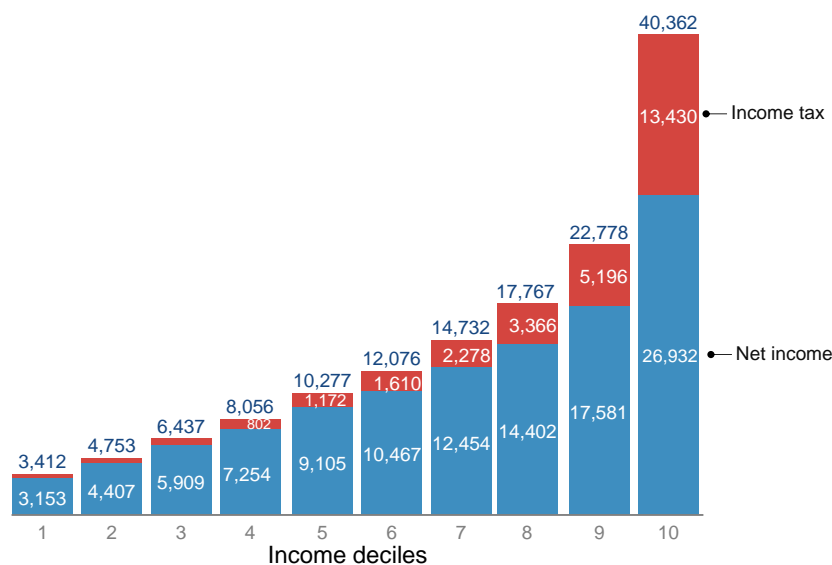
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remaining indirect taxes, such as real estate and television taxes and fines, are calculated directly based on the survey.

<sup>5</sup> Direct taxes include all mandatory payments on income, and overall consists of income tax, payments to the National Insurance Institute and Health Tax.



Figure 2  
**Monthly income and income tax, 2003**  
 by household income decile, shekels, 2011 prices



Source: Moshe Hazan, Tel Aviv University and Taub Center

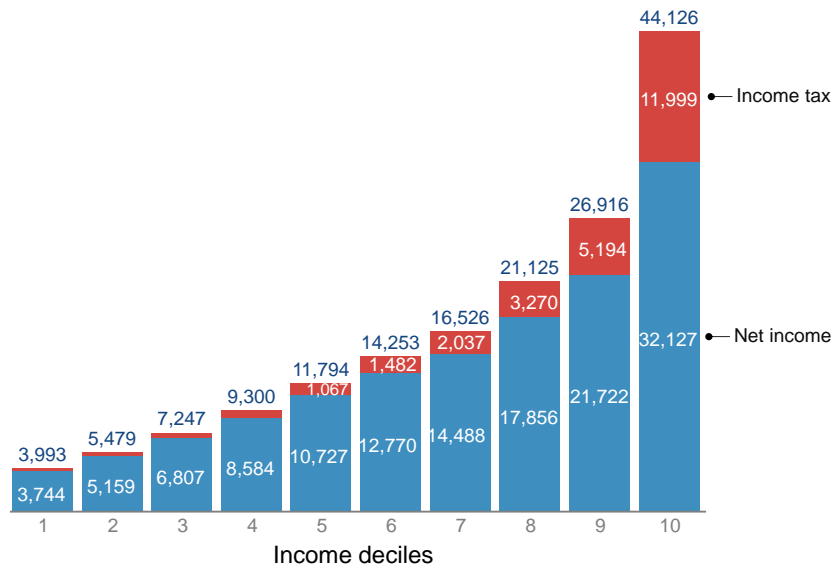
Data: Central Bureau of Statistics, *Household Expenditure Surveys*

As noted, the direct tax system is progressive. While the ratio between average gross income in the uppermost decile to average gross income in the lowest decile was nearly 12, the corresponding net income ratio was 8.5. Similarly, the ratio between the average gross income of the ninth decile to the average gross income of the second decile was almost 5, while the net income ratio between the two deciles was 4.

Figure 3 also presents total household income and direct taxes, but this time based on 2011 data. The gaps shown in Figure 2 are clearly visible in Figure 3 as well, but gross-income inequality declined compared with 2003; the ratio between the average gross income of the highest decile to that of the lowest decile dropped to 11, while the corresponding ratio

between the ninth and second deciles remained the same. However, the decline in the direct tax burden during this period left the net-income ratio between the highest and lowest deciles at 8.5, and actually increased the net-income ratio between Decile 9 and Decile 2 to 4.2.

Figure 3  
**Monthly income and income tax, 2011**  
 by household income decile, shekels, 2011 prices



Source: Moshe Hazan, Tel Aviv University and Taub Center

Data: Central Bureau of Statistics, *Household Expenditure Surveys*

Figure 4 presents the direct tax burden on households by income deciles for the years 2003 and 2011. As noted, tax incidence is calculated as the ratio between total taxes on income and household gross income. In both 2003 and 2011, the direct tax burden rose steadily and steeply between the different income deciles; the more affluent the household,

the greater its tax burden. In 2003, the direct tax incidence was 7.6 percent of gross income for households in the lowest decile, rose to 11.4 percent of gross income for households in Decile 5 and reached 33.3 percent of gross income for families in the highest decile.

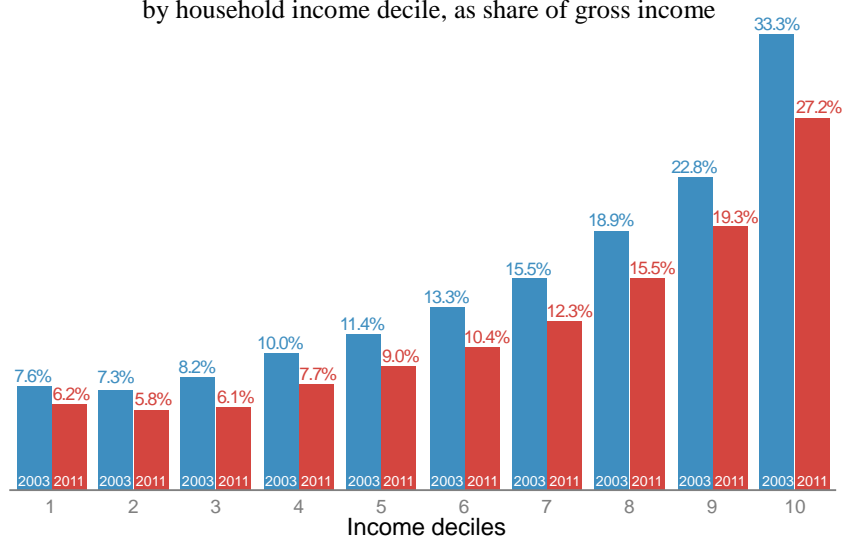
As can be seen in the figure, the direct tax incidence in 2011 is lower than in 2003 for all deciles. In 2011, the direct tax burden borne by households in the lowest decile was 6.2 percent of gross income (a decline of 1.4 percentage points compared with 2003), and rose to 9 percent of income for households in Decile 5 (a drop of 2.4 percentage points) and to 27.2 percent of gross income for households in the highest decile (a reduction of 6.1 percentage points in relation to 2003).

This being the case, the decline in direct tax incidence between 2003 and 2011 grows as the income decile increases; that is, the wealthier the household, the larger the reduction in the direct tax burden it enjoyed. Again, the fact that the direct tax became less progressive in 2011 compared with 2003 helped maintain, and even widen, the net income disparities between households.

Figure 4

### Direct tax burden, 2003 and 2011

by household income decile, as share of gross income



Source: Moshe Hazan, Tel Aviv University and Taub Center

Data: Central Bureau of Statistics, *Household Expenditure Surveys*

## **Spotlight: Potential Impact on Income Distribution of Changes in Direct Taxation**

**Kyrill Shraberman**

After an income tax reform was announced in 2003, Israeli citizens enjoyed a reduction in direct tax incidence. In 2009, when a new government took the reins, the policy of lowering income tax rates was maintained and, as noted, all of these tax policy changes had consequences for income distribution. This raises a question about the potential for income tax policy to reduce income inequality. In order to understand this potential, the Reynolds-Smolensky Index was used. This index expresses differences in income distribution inequality before and after the influence of direct taxation, that is, the decline in income inequality that results from direct taxation (Reynolds and Smolensky, 1977).

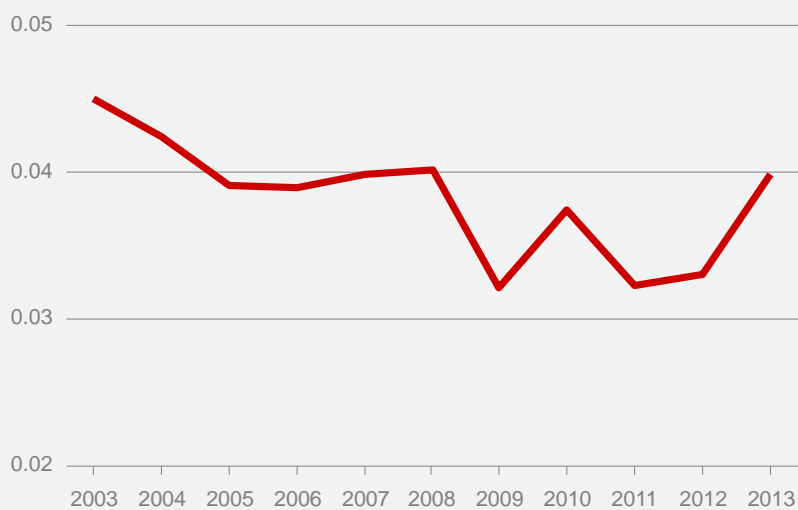
Figure 5 presents the difference between the Gini inequality coefficient for all income, including social benefits and allowances, and the Gini coefficient solely for income after taxes (income tax, National Insurance Institute and Health Tax payments) for the period 2003-2013. For example, the figure shows that in 2008, income inequality in Israel the taxation mechanism narrowed income inequality in Israel by 0.04 Gini points (from a Gini coefficient of 0.428 before tax payments to 0.388 after). Between 2003 and 2009, the ability of income tax to reduce inequality trended downward, due to a lowering of tax rates. Beginning in 2010, there was an improvement in the income tax system's potential to reduce inequality, although in 2014, that potential was still lower than in 2003.

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Figure 5

**The potential of direct tax to reduce inequality**  
the difference between the Gini coefficient on income\*  
before and after income tax (Reynolds-Smolensky Index)



\* Including benefits and transfer allowances

Source: Kyrill Shraberman, Taub Center for Social Policy Studies in Israel

Data: Central Bureau of Statistics, *Household Expenditure Surveys, 2003-2014*

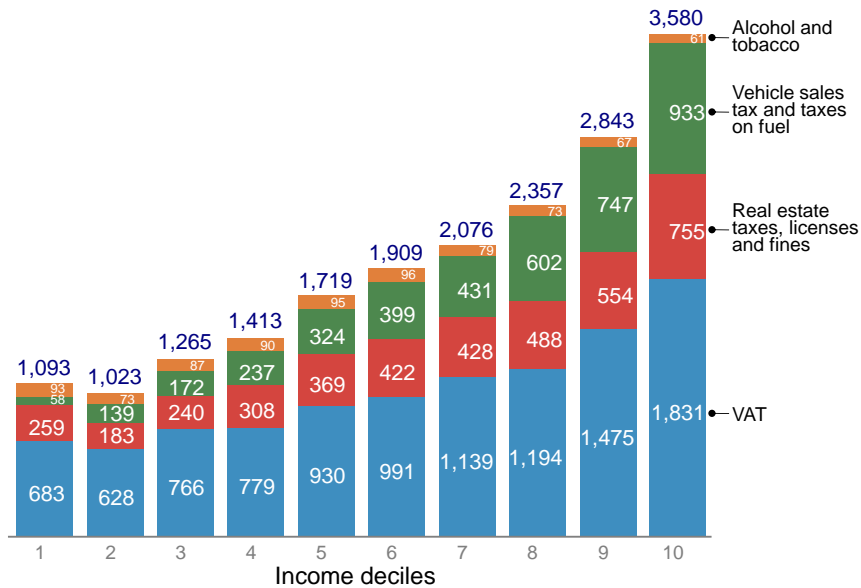
### Indirect Tax Burden

Figure 6 presents the total indirect taxes paid by households in the various income deciles in 2003 (shown in 2011 prices), broken down by type of tax. A number of conclusions may be drawn from the data. First, total indirect taxes increase almost consistently with income: from the NIS 1,000 range in the two lowest deciles to NIS 3,600 in the highest. Second, VAT is the largest component of the four indirect taxes in each of the deciles. VAT accounts for about 63 percent of the indirect tax paid by the lowest decile and 50 percent of the indirect tax paid by the eighth, ninth and tenth deciles.

Figure 6

#### Indirect taxes, 2003

by household income decile, monthly payment in shekels, 2011 prices



Source: Moshe Hazan, Tel Aviv University and Taub Center

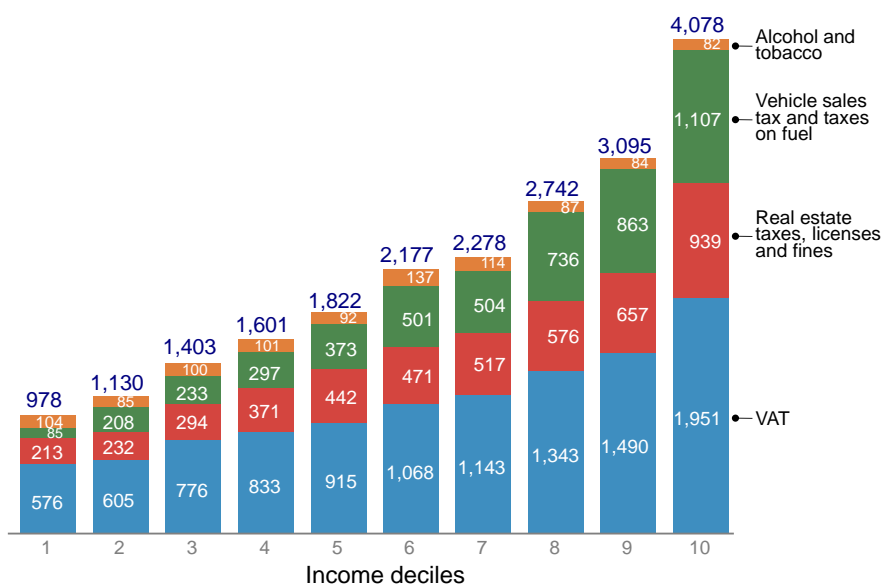
Data: Central Bureau of Statistics, *Household Expenditure Surveys*

Figure 7 also presents the indirect taxes paid by households, this time for 2011. All of the income deciles paid higher indirect taxes in 2011 than in 2003, except for the first decile. Moreover, VAT remains the largest component across all of the deciles, although its share of the total indirect tax in 2011 dropped relative to 2003. This decline is not surprising given that the VAT rate in 2003 was 18 percent and fell to 16 percent in 2011.

Figure 7

**Indirect taxes, 2011**

by household income deciles, monthly payment in shekels, 2011 prices



Source: Moshe Hazan, Tel Aviv University and Taub Center

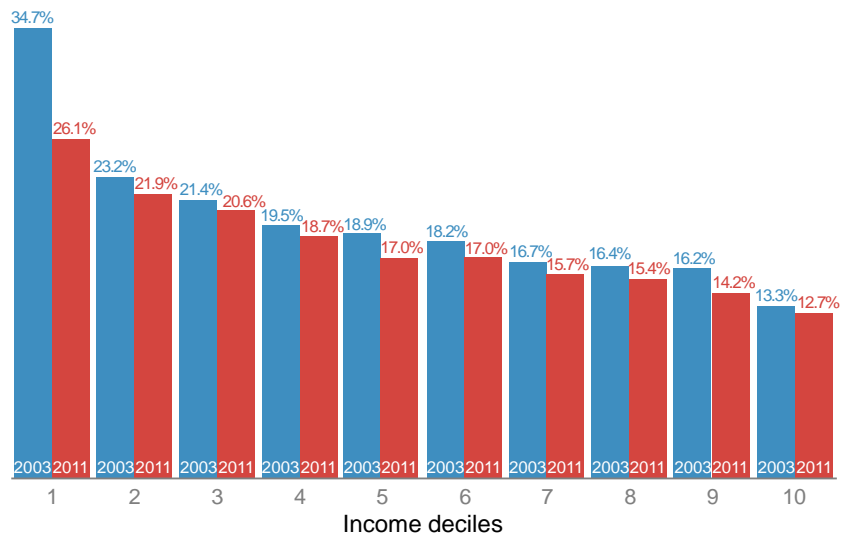
Data: Central Bureau of Statistics, *Household Expenditure Surveys*

Figure 8 presents the indirect tax burden on households by income deciles for 2003 and 2011. The figure displays a mirror image of what was shown in Figure 4 (previously) regarding the direct tax burden. In both 2003 and 2011, indirect tax incidence declined steadily between income deciles: the poorer the household, the greater the indirect tax burden it bore. Moreover, it shows that the indirect tax incidence for 2011 was lower than that for 2003. In 2003, the indirect tax burden was 34.7 percent of net income for the lowest decile, versus 26.1 percent in 2011; for the fifth decile, indirect tax incidence declined sharply from 18.9 percent in 2003 to 17 percent in 2011; while for households in the highest decile the indirect tax burden dropped from 13.3 percent of net income to 12.7 percent in 2011.

Figure 8

### Indirect tax burden, 2003 and 2011

by household income decile, as share of net income



Source: Moshe Hazan, Tel Aviv University and Taub Center

Data: Central Bureau of Statistics, *Household Expenditure Surveys*



### *Total Tax Burden*

Figure 9 describes the total tax burden – the ratio of all tax payments to gross household income – by income deciles for the years 2003 and 2011.<sup>6</sup> A few outstanding points can be discerned in the figure. First, both in 2003 and in 2011, the total tax incidence borne by families in the lowest decile and families in the eighth, ninth and tenth deciles was higher than the burden falling on households in the second to seventh deciles. In 2003, the total tax incidence was nearly 40 percent of the gross income of households in the lowest decile. It declined to less than 30 percent of the income of households in the second decile, a level that remained nearly unchanged up to Decile 7. The 2003 tax burden rose to over 32 percent of income for Decile 8, while for the two highest deciles it amounted to 35 percent (Decile 9) and 42 percent (Decile 10) of household income.

This high level of tax incidence borne by the lowest and the two highest deciles was seen in 2011 as well. The burden on households in the lowest decile was 30.7 percent of gross income, dropping to about 24-26 percent for the second to seventh deciles. The total tax burden rose along with income decile, reaching 28.5 percent of gross income for Decile 8, 30.8 percent for Decile 9 and 36.4 percent for households in Decile 9.

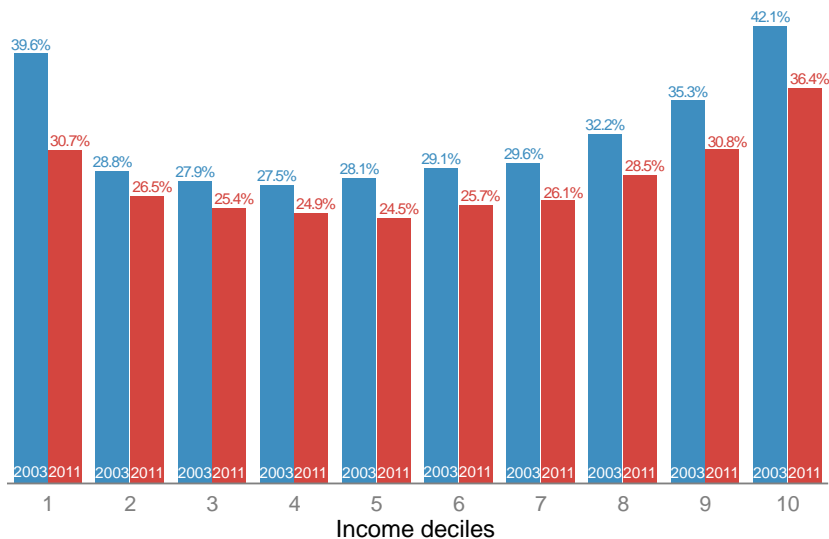
As the figure shows, the tax incidence was distributed much more equitably in 2011 than in 2003, as the main beneficiaries of the easing of the burden were the deciles at both extremes, that is, the lowest and highest deciles.<sup>7</sup>

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<sup>6</sup> Note that because direct tax incidence is customarily calculated against gross income while indirect tax incidence is calculated against net income, total tax incidence is **not** equal to the sum of direct and indirect tax incidence.

<sup>7</sup> The findings in Strawczynski (2015) are similar to those described here, except for the tax burden borne by the first decile. While the figure in this chapter is 40 percent of the income of households in this decile, Strawczynski estimated it at 29 percent in 2001, giving a similar figure for 2012. Bibi-Kersai's findings (2005) are also similar to those reported here, except for the

Figure 9  
**Total tax burden, 2003 and 2011**  
 by household income decile, share of gross income



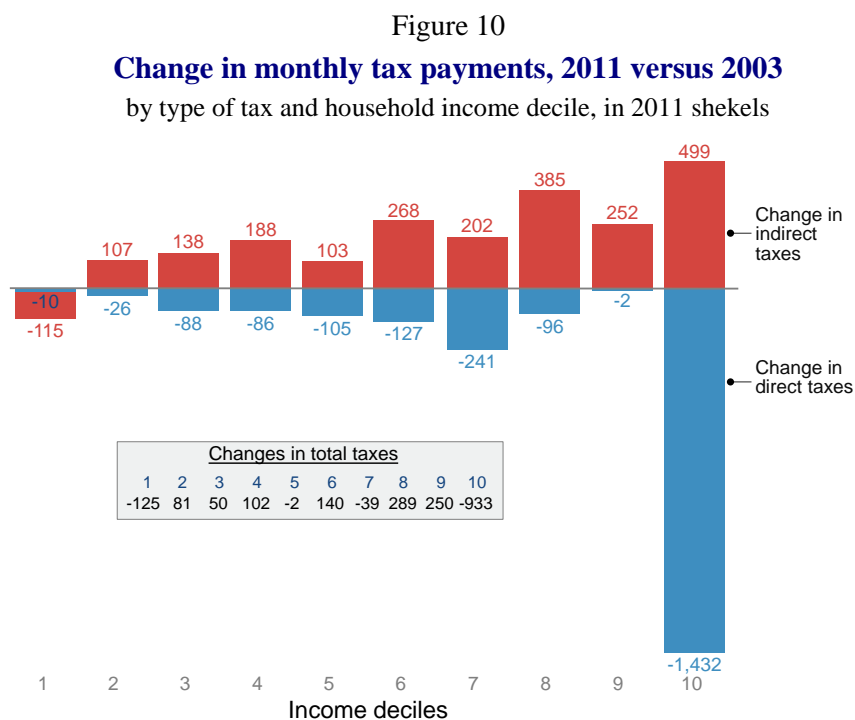
Source: Moshe Hazan, Tel Aviv University and Taub Center

Data: Central Bureau of Statistics, *Household Expenditure Surveys*

Figure 10 presents the difference in tax payments between 2003 and 2011. In absolute terms, the tax total changed only slightly between those years. Households in the eighth and ninth deciles paid NIS 250 in taxes per month in 2003 which increased to NIS 300 per month in 2011. Taxes for households in the first to seventh deciles went up or down by a maximum of NIS 140 per month in 2011 relative to 2003. Only households in the highest decile stood out by paying over NIS 900 less in taxes per month in 2011.

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tax burden on Decile 1, which she estimates at 48 percent. Given these large differences, it appears that background data hinder the measurement of the tax burden borne by Decile 1, and that the estimates for this group need to be carefully examined.



Source: Moshe Hazan, Tel Aviv University and Taub Center

Data: Central Bureau of Statistics, *Household Expenditure Surveys*

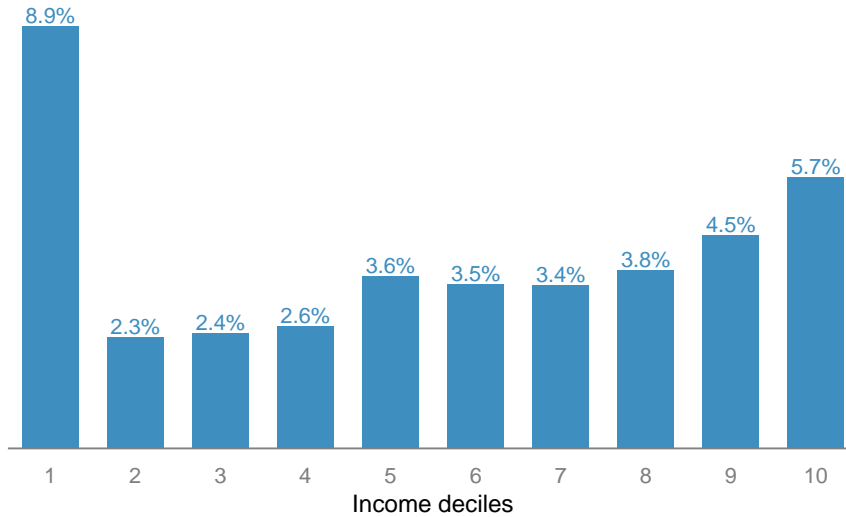
Figure 11 presents the decline in the total tax incidence by income deciles. Several conclusions may be drawn from this figure. First, all Israeli households enjoyed a reduction of the tax burden in 2011 compared with 2003. Second, it was actually households in the lowest decile that enjoyed the largest reduction in the tax burden on gross income, on the order of 8.9 percentage points. However, for households in the second decile upwards the reduction in the tax burden grew along with income. While households in Deciles 2, 3 and 4 enjoyed a tax burden reduction of about 2.5 percentage points of gross income, households in Deciles 5 to 8 enjoyed a reduction of 3.5 to 4 percentage

points of income, while the tax burden falling on households in the ninth and tenth deciles was eased by 4.5 to 5.7 percentage points of gross income, respectively.

Figure 11

**Overall decrease in tax burden, from 2003 to 2011**

by household income decile, as percentage points of gross income



Source: Moshe Hazan, Tel Aviv University and Taub Center

Data: Central Bureau of Statistics, *Household Expenditure Surveys*

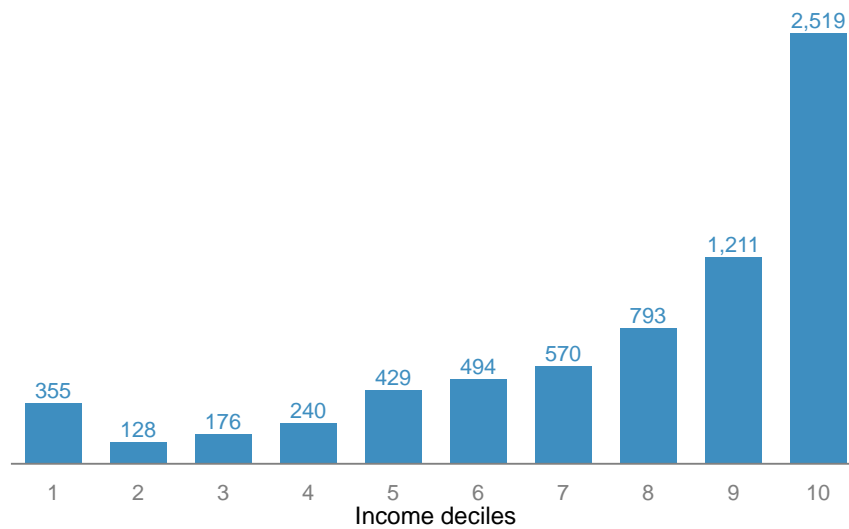
Figure 12 translates the tax burden decline that occurred between 2003 and 2011 into financial terms, that is: how much money each household would have saved had the 2011 tax rate been the same as that of 2003. It should be noted, of course, that this calculation carries with it the assumption that households' expenditures and income from labor would not have changed following changes in the consumption and income tax.

The figure shows that the value of the tax burden reduction between 2003 and 2011 rose substantially along with household wealth. Households belonging to the first six deciles “earned” NIS 130 to NIS 500 per month from the tax rate change; households in Decile 7 – NIS 570; households in Decile 8 – NIS 800; households in Decile 9 saved over NIS 1,200 per month; and households in the highest decile saved more than NIS 2,500 per month thanks to the decline in the tax burden that took place between 2003 and 2011.

Figure 12

**Overall decrease in tax burden, from 2003 to 2011**

by household income decile, monthly in shekels, 2011 prices



Source: Moshe Hazan, Tel Aviv University and Taub Center

Data: Central Bureau of Statistics, *Household Expenditure Surveys*

The findings presented above should be examined in light of some important changes since 2011. Firstly, they do not reflect the impact of the negative income tax. This tax was instituted in 2008 in the framework of the Earned Income Tax Credit (EITC) program and was initiated for low-wage workers. The tax credit related to their previous year's earnings. The program was implemented gradually; only from 2012 onwards has it applied to salaried employees and self-employed people regardless of their place of residence. Over the years, the program's coverage has expanded, as well as the rate at which those eligible have exercised their right to this entitlement: from 46 percent in 2007 to 52 percent in 2011.

The 2011 *Household Expenditures Survey* includes household incomes and compulsory tax payments; however, no households reported negative income tax. For this reason, the data presented in the survey should be treated with caution. In particular, due to the negative income tax, the data presented in Figure 4 show direct tax payments that are higher than the tax payments actually made by households belonging to the lower portion of the income distribution. In 2011, the average annual EITC was NIS 2,900, which is roughly NIS 242 per month. On the assumption that those eligible for the EITC belong to the two lowest deciles, and that this group's utilization rate was 50 percent, the net income of households in these two deciles would have been NIS 120 per month higher with the addition of the negative income tax. However, most of the analysis covered in this chapter would not have changed dramatically.

Another fundamental change that occurred after 2011 is the VAT increase. In 2011, VAT was 16 percent. During 2012, it was raised to 17 percent, and in 2013, to 18 percent. Given the fact that, the poorer the household, the greater the share of VAT in the indirect taxes that it pays (due to the higher consumption rate), this change was more harmful to households in the lower part of the income distribution. By way of illustration, assuming that household expenditures are unaffected by the VAT rate, households in Decile 2, which enjoyed a reduced indirect tax burden on the order of slightly more than a percentage point (Figure 8),

would have borne an identical indirect tax burden if the VAT rate in 2011 had been 18 percent, as it is today. Furthermore, the data in Figure 8 show that a decline in the indirect tax burden borne by households in the upper portion of the income distribution in this hypothetical situation would have been even smaller subject to the assumptions that were presented regarding Decile 2. Households in the highest decile would not have enjoyed a reduced indirect tax burden had the VAT rate been 18 in 2011. It may be argued that, when looking at the impact of the VAT increase as percentages of income, it was not particularly significant in terms of the tax burden falling on Israeli households in the various income deciles.

### ***3. Conclusion***

This chapter analyzed the change that occurred in the tax burden by income decile between 2003, the “watershed” year in terms of Israeli fiscal policy, and 2011. The main findings point to a reduction in the direct and indirect tax burden borne by all Israeli households. However, this reduction was not uniform, and it primarily benefited households in the lowest decile and in the highest three deciles. It is important to note that while this chapter’s findings are consistent with those of other studies on the topic (Bibi-Kersai, 2005; Strawczynski (2015)), tax incidence findings for the lowest decile differ widely – which may indicate a major problem with estimating the tax burden borne by this decile. By contrast, one may confidently conclude that Israeli tax policy during the period 2003-2011 mainly benefited the three highest deciles, contributing to wider net income disparities and to a sense that Israeli is experiencing an erosion of its middle class.

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