

GOVERNMENT SUPPORT FOR YOUNG FAMILIES IN ISRAEL<sup>1</sup>

ADI BRENDER\* AND MICHEL STRAWCZYNSKI\*\*

Abstract

This paper examines the policy option of providing government assistance to families with young children and financing it by increasing income taxes when the children leave home and the parents' wages rise due to their tenure in the labor market. We examine the expenditure composition and the characteristics of labor market participation of parents of young children (up to age 9) in Israel, and find that these families have higher expenditures than other families, and that their income in the years in which children are present in the household is lower than in the following years. We do not find evidence that the relative position of young families deteriorated during the last decade, except for the housing market where we identify a consistently rising share of these families residing in rented dwellings; such a trend did not develop among families without children or families with older children (aged 10–18). We also show that parents of young children are characterized by high employment rates and persistent employment. A comparison of government support for young families in other OECD countries with those in Israel for 14 representative family types—characterized by their structure and income composition—shows that it is higher in the other OECD countries for all of the family types. A simulation of raising the average benefits for young families in Israel to the level common in other OECD countries, while raising income tax rates at older ages in a way that keeps the policy fiscally balanced—and the individuals' lifetime income level unchanged—indicates that welfare can be increased substantially via consumption smoothing over the family's life cycle.

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\* Research Department, Bank of Israel; Email: [adi.brender@boi.org.il](mailto:adi.brender@boi.org.il)

\*\* Economics Department and School of Public Policy, Hebrew University of Jerusalem, Email: [michel.stawczynski@mail.huji.ac.il](mailto:michel.stawczynski@mail.huji.ac.il)

## 1. INTRODUCTION

The government's response to the social protest of the spring and summer of 2011 focused on assistance for parents of young children, mainly middle- and high-income working parents<sup>2</sup>, and low-income working mothers. A review of the cost of implementing the Trajtenberg Committee recommendations, on which the policy to counter the protests was based, shows that most of the additional budget recommended by the Committee was to be directed to providing free education for 3- to 4-year-olds and after-school activities for children up to age 9 (Report of the Committee for Economic and Social Change, p. 122). Based on the Committee's recommendations, the government also increased the benefits in the Earned Income Tax Credit Program for low-income working mothers, and introduced tax credit points for fathers of children aged up to 3. The focus of these government measures raises the question of whether young parents in Israel are in fact a group characterized by special difficulties, whether these difficulties have intensified over time—particularly in the years preceding the social protest—and whether government policy towards this group in Israel differs from other advanced economies. This question is even more pertinent in view of the sharp cutback in child allowances that was introduced in mid-2013, which substantially reduced government assistance that had been given to young families in the aforementioned plans.<sup>3</sup>

This paper examines the economic situation of young families in Israel from several perspectives, with the focus on working parents. First, we attempt to characterize the consumption patterns of this group, compared to the rest of the population. Given that the vast majority of Israelis become parents during their lifetime (93 per cent of workers aged 50–60 are parents (Figure 1), of which two-thirds have adult children), in practice we examine the cycle of expenses in the lifetime of Israeli citizens. We examine which expenses increase when children are part of the household, and the extent to which total expenses increase while the children are being raised. Second, we examine whether, over time, and particularly in recent years, spending on items that typify young families (such as education) has increased, whether due to the rising cost of these products and services or to a reduction in the scope of the services provided by the government. We also calculate a separate consumer price index (CPI) for families with children and compare its development over time with the CPI for the rest of the population. To conclude this review we focus on the differential impact of developments in the housing market over the last decade on young families. Our analysis shows that rising home prices were responsible for the main change in the cost of living during the pre-protest

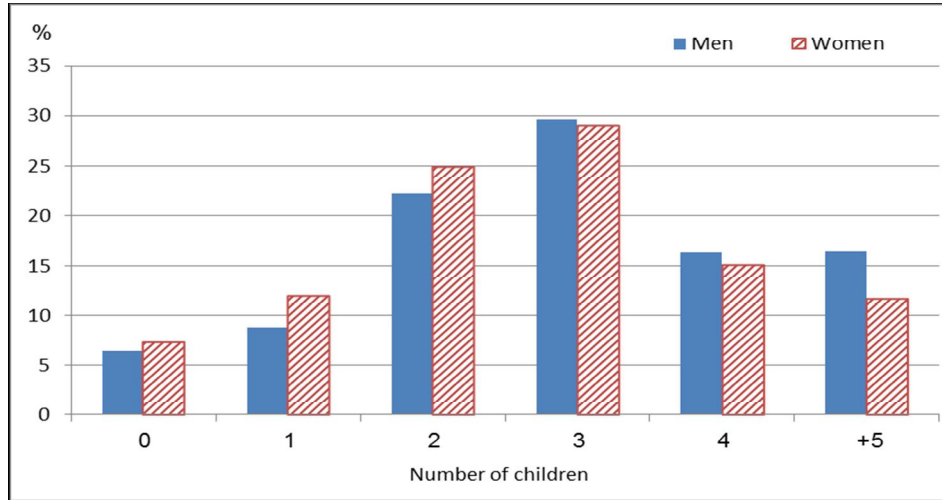
<sup>2</sup> These were the main groups to benefit from the broader Free Education Law for 3-4 year olds, given that in the weaker communities and poorer urban neighborhoods, free education for these age groups was introduced prior to 2011 (Bank of Israel Annual Report 2012, p. 195). The tax credit points for fathers are only relevant for those whose salary is above the tax threshold (Bank of Israel Annual Report 2011, Box 6.1, p. 252).

<sup>3</sup> Some of the additional assistance given as a result of the Trajtenberg Committee recommendations was cancelled in the Budget Arrangements Law that accompanied the 2013-2014 State Budget.

period, and the assessment of whether young families were most severely affected is therefore important.

**Figure 1**

**The distribution of the total number of children of working men and women aged 50–60, 2011**



**SOURCE:** Based on the Bank of Israel database of salaried employee reports.

One of the most important factors in government policy making aimed at assisting young parents is their conduct in the labor market over their lifetime. Government policy over the last ten years has emphasized that welfare policy is based on providing support for employment and the working population. If young working families are persistently employed, then support for this group will dovetail with the general welfare policy; conversely, if parents are not persistently employed (e.g. mothers who opt out of the labor market permanently), then government assistance may be inconsistent with overall policy. Moreover, the path of rising wages as life progresses justifies government assistance during the years of parenting, for reasons of consumption smoothing and as the parents' higher income in the future forms the basis for tax payments that will enable a budget balance to be reached between the assistance and future payments. This is due to the fact that, as mentioned, the vast majority of Israeli citizens are also parents. To examine these issues, we analyze the employment and wage paths of Israeli parents with the help of a panel of income tax data reported by employers, comprising a sample of more than 300,000 salaried employees over the last ten years.

The issue of the lifetime spread of income and expenses is not unique to Israel, and this paper therefore also examines whether government assistance for parents in Israel differs from standards in other advanced economies. Using OECD and EU databases and simulators, we compare the assistance that Israel and other advanced countries

provide for young families. For this purpose, we examine the tax benefits for parents of preschoolers, child allowances and various other benefits that cover education services and child care.<sup>4</sup> Obviously, social preferences are not necessarily the same in different countries, but the comparison shows where Israel stands on the subject of assistance for young families, as a marker for policy makers should they decide to adjust their preferences following the social protests.

A theoretical review of the subject of assistance for young families can be incorporated in a basic consumption smoothing model. The child-rearing period potentially involves a high concentration of expenses combined with income levels that are below the lifetime average and an inability to smooth consumption through the capital market. However, welfare can be improved through government intervention that increases assistance for parents when children are part of the household, and taxes them in the future when the children have grown up and income levels rise. Such a model is fiscally balanced over time, improving the wellbeing of young families. In this paper we present such a model and analyze a simulation of its repercussions based on the characteristics of Israel's population.

The advanced economies invest considerable energy in identifying the correct policy for providing benefits for young families. Atkinson and Bourguignon (1990) analyzed the optimum policy for families with children in a comparison between France and the UK. Innervoll and Barber (2005) calculated the costs of child care, quantifying the trade-offs between going out to work and staying at home. In this context, Thevenon (2008) shows that the Scandinavian countries are the most generous in subsidizing child care, while French policy tools encourage the second income earner in families with one child at home to work full time, shifting to part-time work when other children are born. The OECD data (2007a, 2007b, and 2009) demonstrate current policy in the advanced economies with respect to benefits for families with children.

Lohmann, Rostgaard and Spiess (2009) discuss the theoretical aspects and methodologies of government policy making for families in the EU countries. Adema, del Huerta, Thevenon and Pearson (2009) and Adema and Ladaique (2009) describe the databases used by the OECD in relation to the desired policy for families with children, which is based on four sectors: family structure, the importance of raising children in a family setting, the position of families in the employment market, and the preferred policy tools for addressing the family's needs.

This paper has the following structure: Section 2 presents the characteristics of the expenses of young families in Israel and their development over time. Section 3 examines the characteristics of their employment and wages, and Section 4 presents a global comparison of benefits for parents. In Section 5 we present a theoretical model of consumption smoothing over lifetime, and a simulation of its results based on data for Israel. Section 6 concludes the study.

<sup>4</sup> The tax system—income tax in particular—may also differ considerably between countries. For example: tax thresholds differ among countries, resulting in a different tax burden when comparing individuals or families in different countries. In this study, we analyze the horizontal inequality with the emphasis on family size, and we therefore concentrate on benefits that are given as a function of family composition.

## 2. THE EXPENSES OF YOUNG FAMILIES

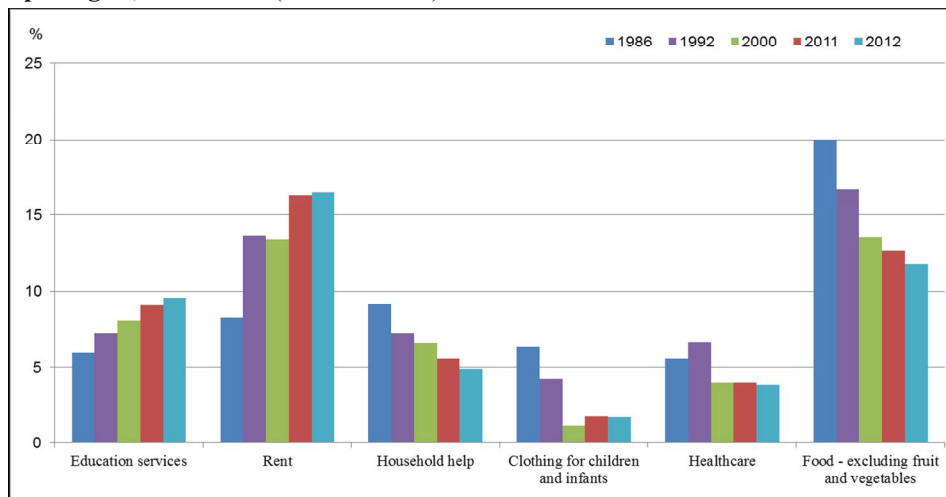
### a. Expenditure composition of families with children

The three largest items in the expenditure of young families<sup>5</sup> are housing, food and education (Figure 2). The cost of housing, in its various forms (monthly rent and housing consumption in kind) has risen over time, although the increase in rent, the weight of which doubled between 1986 and 2012, is particularly marked. The weight of education has also risen over time, whereas food has dropped from 20 to 13 percent of disposable income. An assessment of the individual items that characterize the expenses of parents of children up to age 9 shows three main items that account for a high proportion of household income: home and household maintenance, child care at home and private kindergartens.

Figure 2 shows the development of these items over time, emphasizing the continuous increase in housing costs and education services, alongside a decline in food expenses.

**Figure 2**

**Percentage of disposable income spent on key items by households with children up to age 9, 1986–2012 (selected items)**

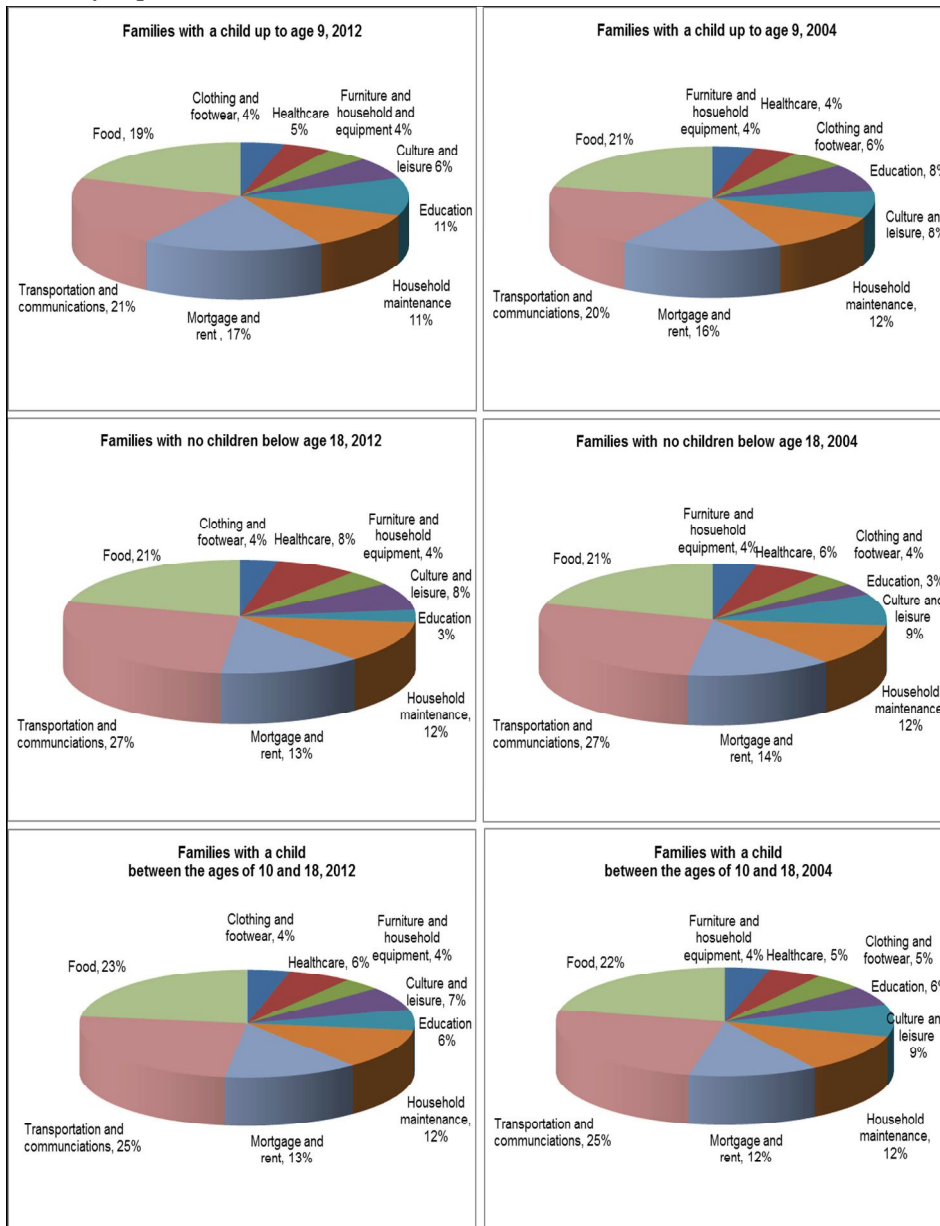


**SOURCE:** Based on the Central Bureau of Statistics Household Expenditure Survey.

To help understand the expenditure composition (in families with parents up to age 65), we prepared pie-graphs that compare these families with other groups (Figure 3). The pie-graphs relate to the main items of expenditure in working families (where the head of the household is married, and monthly income from work is at least NIS 1,000 at 2010 prices), without children, with children up to age 9, and with children aged 10–18,

<sup>5</sup> Two-parent families, whose monthly labor income is more than NIS 1,000 in 2010 prices.

**Figure 3**  
**Monthly expenditures for households with or without children, 2004 and 2012\***



\* Families in which there are two spouses, whose monthly income from work exceeds NIS 1000 in 2010 prices, and where the head of household is less than 65 years old.

**SOURCE:** Based on Central Bureau of Statistics Household Expenditure Survey data.

based on the expenditures surveys for 2004 and 2012. This comparison shows that the proportion of family expenditure spent on education and housing is higher among families with children up to age 9, while healthcare, transport and communications account for a smaller proportion of family expenditure. There is no significant difference between the basket of expenses in 2004 and that of 2012, other than the increase in the weight of expenditure on education among young families.

To summarize the impact of children on household expenditure, we estimated regressions on total family expenditure<sup>6</sup> as a function of the number of children and other control variables: years of schooling of the head of the household, years of schooling squared, age of the head of the household, age squared and the number of wage earners. The results of the regression appear in Table 1 and Figure 4. Age group patterns appeared to be homogeneous and we therefore worked with three age groups: 0–3, 4–14, and 15–17.

The regression shows that families with a child aged 0–3, have a monthly expenditure that is higher by NIS 650. This falls to NIS 300 in the 4–14 age group but climbs to NIS 1,000 in the 15–17 age group. These are significant additions to family expenditure, particularly when the family has more than one child, and they demonstrate the difference between the financial burden on families with children and the burden on those without children.

This gap is also noticeable in the amount of savings. Appendix 2 is a chart showing the rate of savings out of income of couples married up to 10 years with children up to age 9 and of families with no children up to age 18. The rate of savings of the young families with children ranges from zero to 5 percent between 2005 and 2012, while the rate of savings for families without children increased from about 16 percent in 2005 to about 22 percent in 2012.

**Table 1**  
**Regression of total monthly expenditure on the number of children in different age groups\*, 2011**

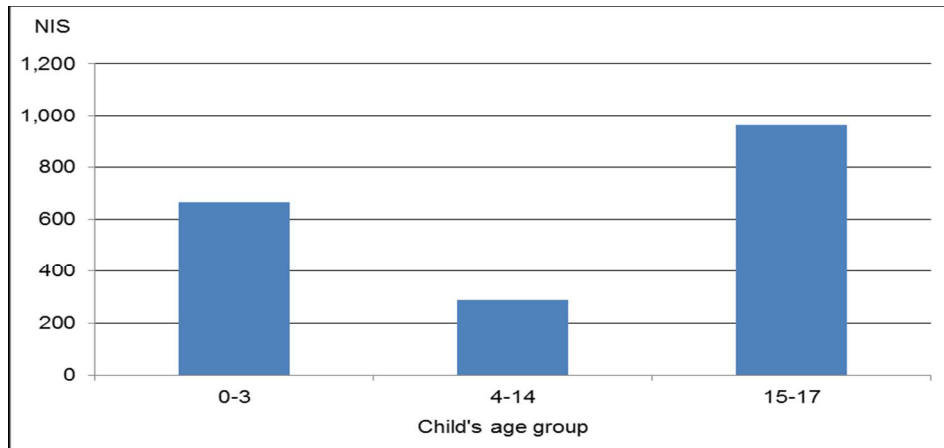
	Consumption expense in shekels
Number of children aged 0–3	664***
Number of children aged 4–14	292***
Number of children aged 15–17	964***
Years of schooling	1,188***
Years of schooling squared	-20***
Age	472***
Age squared	-4***
No. of wage earners	2,036***
Constant	-13,663***
<b>N</b>	<b>3,357</b>
<b>R<sup>2</sup></b>	<b>0.153</b>

\* The data in the table are the regression coefficients.

\*\*\* Indicates significance of 0.01.

<sup>6</sup> Expenditure on consumption: excluding imputed housing and including mortgage expenses.

**Figure 4**  
**Effect of each child, by age group, on monthly household consumption expenditure in shekels, 2011**



SOURCE: Based on Central Bureau of Statistics Household Expenditure Survey.

#### **b. Percentage of households in the Expenditure Surveys who live in rented accommodation**

The high proportion of expenditure that young families spend on housing, together with the rising cost of apartments since the middle of the last decade, show the need to conduct an in-depth examination of developments in the housing sector.<sup>7</sup>

Rising home prices adversely affect households that do not yet own their own homes, particularly couples who married after prices began to rise and have not yet purchased an apartment. These couples see the dream of owning a home move out of their grasp and they are forced to save more of their current income to realize it, while paying rent at the same time.<sup>8</sup> Rising home prices have made it particularly difficult for young families (married for up to 10 years) with more severe liquidity constraints to finance the purchase of an apartment, and they have no alternative but to rent in a market where prices are rising (although less so than for buying). Figure 5 shows that the percentage of young couples with a child up to age 9 who live in rented accommodation rose by 15 percentage points between 2003 and 2012 (about 13,000 families). This increase was even more acute—about 20 percentage points—among the non-ultra-Orthodox Jewish population, whereas in the ultra-Orthodox and Arab sectors the rate of those renting homes is almost unchanged. In contrast, the proportion of renting households without children did not change. Contrary to the recent past, between 1997 and 2003 the proportion of young families renting an apartment was

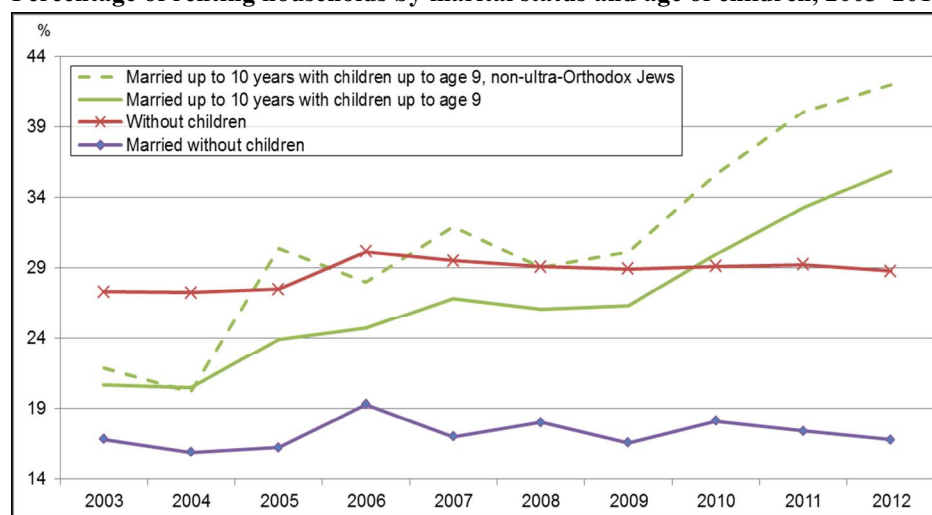
<sup>7</sup> Households with children up to age 18, where the child is not the son or daughter of the head of the household (e.g. grandchild, niece/nephew, etc.) were excluded from this study. The data were inflated according to the Central Bureau of Statistics inflating coefficient.

<sup>8</sup> A renting household is a household which has a positive expenditure on rent.



fairly stable and similar to the proportion of renters among all households. The figures also show that between 1992 and 1997, when home prices rose sharply, the rate of young families living in rented accommodation increased.

**Figure 5**  
Percentage of renting households by marital status and age of children, 2003–2012



Excluding households with rental income.

**SOURCE:** Based on Central Bureau of Statistics Household Expenditure Survey data.

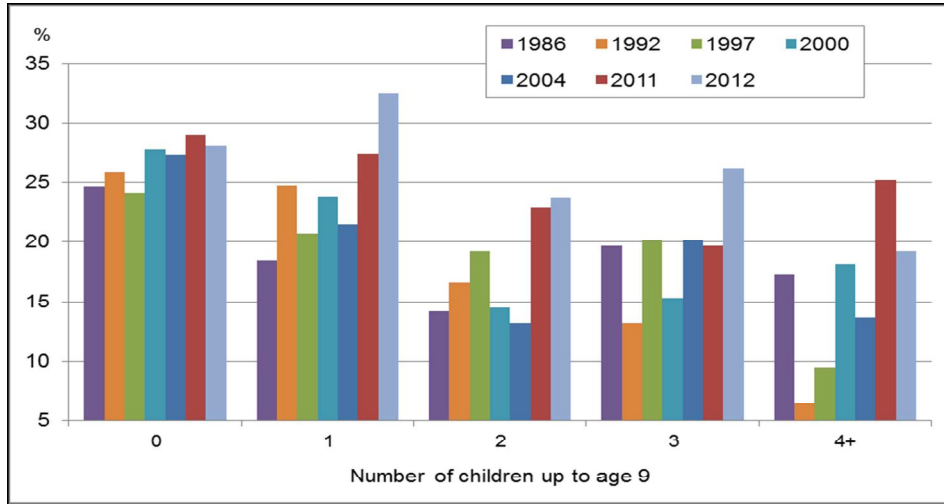
One possible explanation for the increase in the percentage of young families living in rented accommodation is that some of them rent out one apartment and rent another; the state of the housing market therefore does not cause them serious harm. This option is examined in Table 2 where we find that the increase in the number of households between 2004 and 2011 accounted for only a small percentage of the total increase in the number of families with children living in rented accommodation.

**Table 2**  
Households living in rented accommodations that have rental income (percentage), 2003 and 2012

	Without children up to age 18	With a child up to age 9	With a child aged 10–18	Married up to 10 years with a child
2003	2.6	3.6	2.1	4.3
2012	1.9	3.8	3.3	4.4

Figure 5 shows that the shift to renting has mainly affected couples married for less than 10 years with children, whereas among families without young children, the proportion of renting households has remained relatively static. We also examined how the rate of renters changes as a function of the number of children, shown in Figure 6.

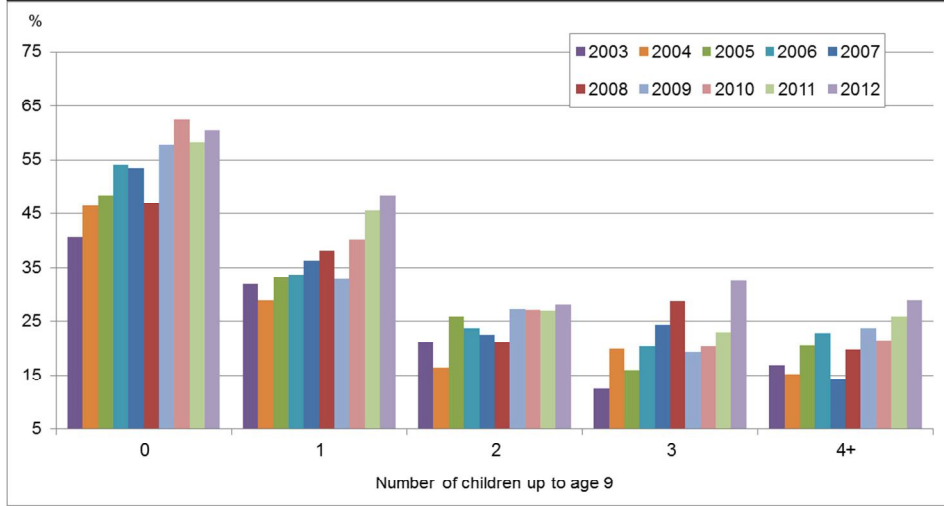
**Figure 6**  
**Percentage of renting households by number of children up to age 9, selected years**



SOURCE: Based on Central Bureau of Statistics Household Expenditure Survey data.

When dividing the percentage of renters among young families married up to 10 years by the number of children up to age 9, we can see that this percentage increased significantly between 2003 and 2012, among all young family groupings (Figure 7).

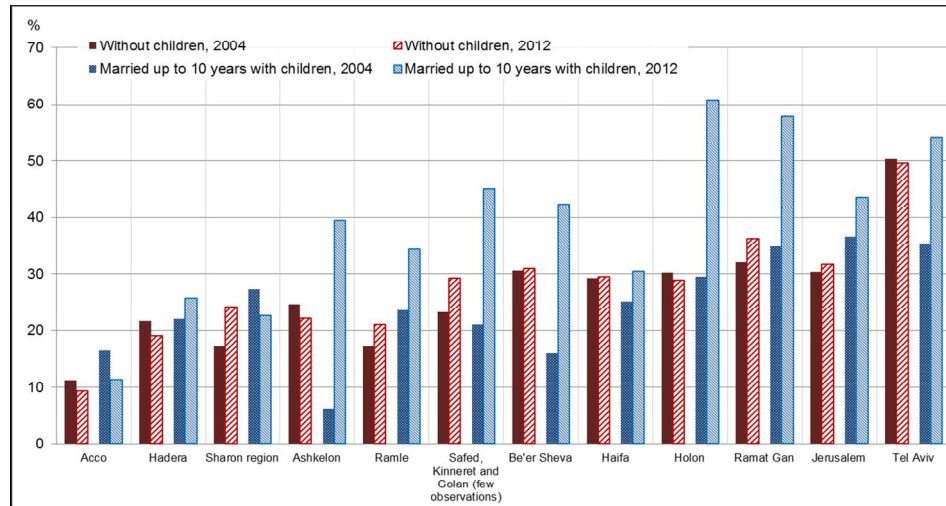
**Figure 7**  
**Percentage of renting families married up to 10 years, by number of children up to age 9, 2003–2012**



SOURCE: Based on Central Bureau of Statistics Household Expenditure Survey data.

The geographic distribution in 2004 and 2012 shows a sharp jump in the percentage of young families renting in the Tel Aviv Metropolitan Area (Tel Aviv, Ramat-Gan, Holon), Ashkelon, Be'er Sheva, and in the north, indicating that this problem has affected many different parts of the country. Correspondingly, there is almost no change in the percentage of households without young children living in rented accommodation in almost all parts of the country (Figure 8).

**Figure 8**  
**Percentage of renting households without children and families married up to 10 years with children up to age 9, by geographic area, 2004 and 2012**

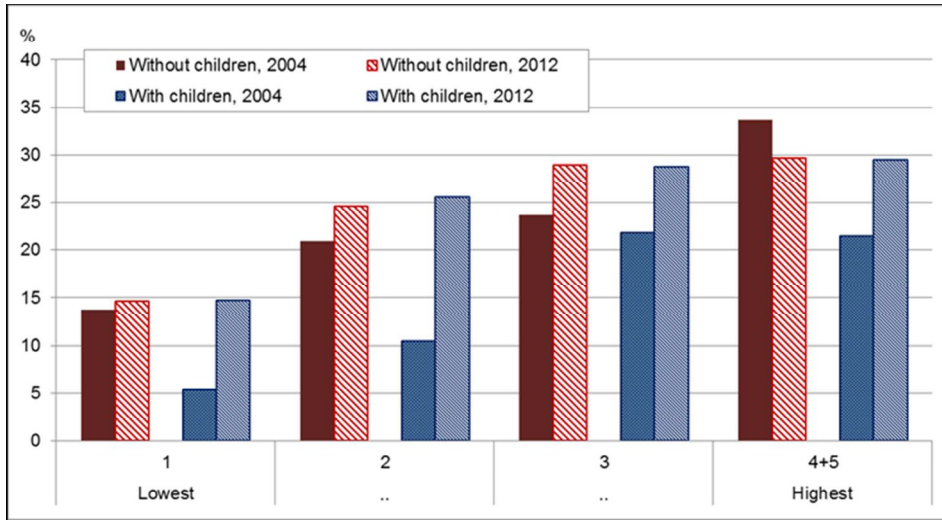


SOURCE: Based on Central Bureau of Statistics Household Expenditure Survey data.

Figure 9, which allocates residential location by socio-economic ranking, shows that the gap between families with young children and households without children, with a change in the proportion of renters, was significant in most socio-economic clusters.<sup>9</sup> The housing difficulties faced by young families were therefore not limited to any particular socio-economic group.

<sup>9</sup> The fifth cluster is not presented separately due to the small number of observations.

**Figure 9**  
**Percentage of renting households with and without children up to age 9 by socioeconomic ranking of residential location<sup>a</sup>, 2004 and 2012**



<sup>a</sup> Due to the small number of observations, the higher rankings 4 and 5 were consolidated.  
**SOURCE:** Based on Central Bureau of Statistics Household Expenditure Survey data.

The marked increase in the rate of young non-ultra-Orthodox Jewish families who are renting a dwelling is also reflected in the regressions presented in Appendix 3. These regressions assess the likelihood that a family with certain characteristics will rent their dwelling (instead of living in a home they own), and the difference between the coefficients in the years 2004 and 2012 shows changes in the impact of various characteristics on this likelihood. The regressions show that in 2004, the likelihood that a couple married less than 10 years with children would live in rented accommodations was lower than that of other households, but in 2012 it had become the highest by a significant margin. The regressions also show that a marked gap opened between such families from the Arab and Ultra-Orthodox sectors and the others. While the likelihood of living in rented accommodations increased markedly among secular Jewish families, it increased less among parallel Ultra-Orthodox families, and did not increase at all among Arab families.<sup>10</sup> The regressions did not find any significant changes in the impact of the characteristics of the community on the housing of young families between 2004 and 2012.<sup>11</sup> It was also found that the number of children up to age 3 had a further strong impact on the increase in the likelihood of living in rented accommodations.

<sup>10</sup> According to a comparison of the coefficient amounts of “married up to 10 years with children” and “married up to 10 years with children and Arab” in regressions 1 and 2.

<sup>11</sup> The communities included in socioeconomic status 3 changed significantly between the two years, particularly due to the transition of Jerusalem to status group 2.

To understand the effect of children on housing expenditure, we estimated a regression that incorporates the number of children, with the same control variables mentioned above. The results appear in Table 3 and Figure 10.

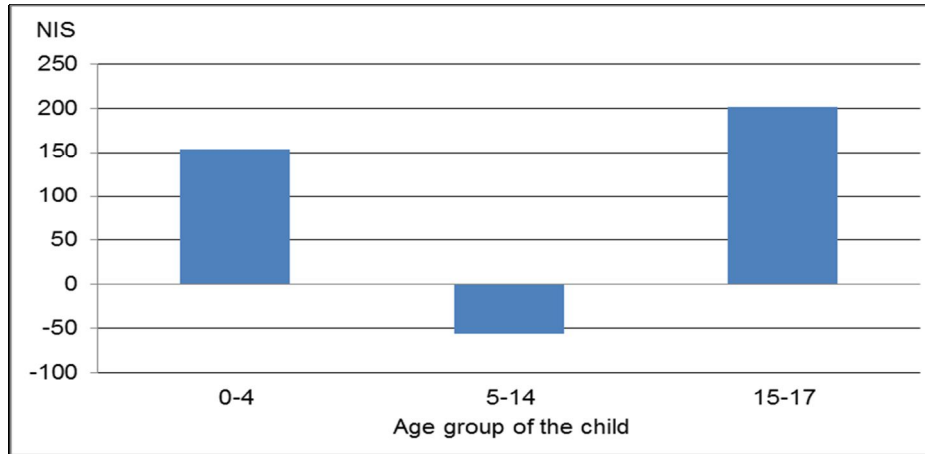
**Table 3**  
**Regression on rent and mortgage expense\*, 2011**

	Rent and mortgage expenditure
Number of children aged 0–4	154***
Number of children aged 5–14	-56***
Number of children aged 15–17	201***
Years of schooling	178***
Years of schooling squared	-3***
Age	39***
Age squared	-0.7***
No. of wage earners	175***
_cons	-626***
N	3,357
R <sup>2</sup>	0.063

\* The data in the table are the regression coefficients.

\*\*\* Indicates significance of 0.01.

**Figure 10**  
**Effect of a child, by age, on rent and mortgage expenditures, 2011**



It emerges that rent and mortgage add about NIS 150 per child to the family's monthly expenditure in the 0–4 age group, and NIS 200 in the 15–17 age group.

**SOURCE:** Based on Central Bureau of Statistics Household Expenditure Survey data.

### c. Education expenses by relevant population groups

A review of education expenditures was conducted for households with children of the appropriate age for each category of education framework. The upper part of Table 4 shows the expenditure rate in percent on various education items among families with such expenses. The subsequent Figures show the data in a moving two-year average. Prior to 2004, the Central Bureau of Statistics defined education items differently—day nursery, pre-kindergarten, compulsory kindergartens, as well as elementary and middle school, were lumped together and it is therefore impossible to present data over a longer period.

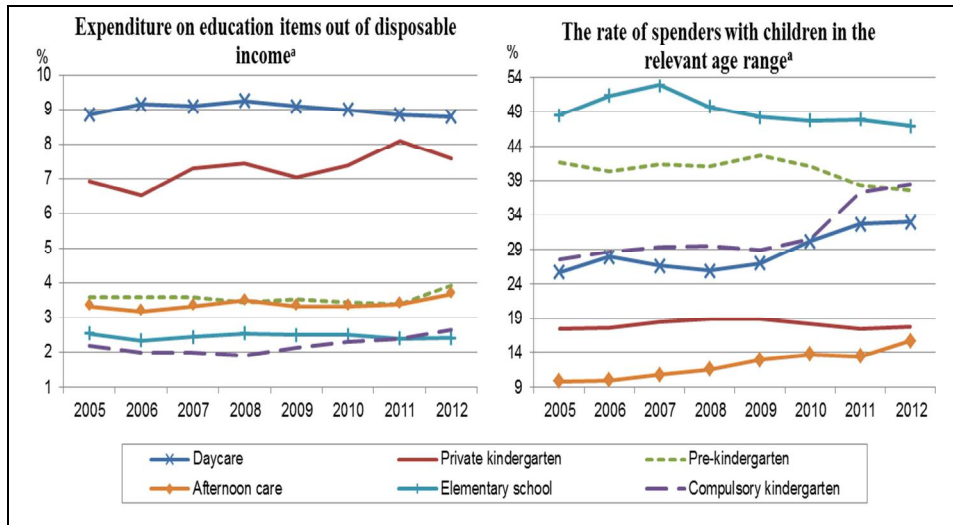
There is a marked increase in the percentage of parents who spend on day care for children aged 0–3, although the actual expenditure rate remains fixed at 9 percent of income. In the 4–5 age group, expenditure on private kindergartens increased in the middle clusters while the percent of spenders remained fixed. In contrast, expenditure on pre-kindergarten was static, although the percentage of families paying for compulsory kindergarten and for afternoon care increased towards the end of the period.

**Table 4**  
**Percentage of expenditures for education items, 2004-2011**

		Daycare	Private kindergarten	Pre-kindergarten	Compulsory kindergarten	Elementary school	Afternoon care	Tutoring
Average expenditures from disposable income	2011	8.4	8.3	3.5	2.8	2.3	3.5	2.1
	2010	9.3	7.9	3.3	2.0	2.5	3.3	2.6
	2009	8.7	6.9	3.6	2.6	2.5	3.4	2.2
	2008	9.5	7.2	3.5	1.7	2.5	3.3	2.1
	2007	9.0	7.7	3.4	2.1	2.6	3.7	2.3
	2006	9.2	6.9	3.8	1.9	2.3	3.0	2.1
	2005	9.1	6.2	3.4	2.1	2.4	3.4	2.8
	2004	8.6	7.7	3.8	2.3	2.7	3.3	2.0
Percentage of spenders	2011	32.4	16.9	39	41.2	47.8	13.2	14.5
	2010	32.9	18.0	37.5	33.4	47.8	13.7	16.0
	2009	27.5	18.3	44.6	27.6	47.5	13.7	15.8
	2008	26.4	19.5	40.7	30.4	48.9	12.2	13.4
	2007	25.4	18.1	41.4	28.7	50.5	10.9	15.1
	2006	27.8	18.8	41.3	30.0	55.1	10.7	13.4
	2005	28.0	16.3	39.3	27.3	47.5	9.3	13.6
	2004	23.3	18.5	44	27.8	49.5	10.3	13.3
group Age		0–3	4–5	4–5	5–6	6–13	6–13	6–13

**SOURCE:** Based on Central Bureau of Statistics Household Expenditure Survey data.

**Figure 11**



In a regression of the expenditures on the different education items by the number of children in each age group (Table 5), we divided the children by other groups which are relevant for their educational frameworks. We therefore built 4 groups, presented in Figure 12. The regression shows that the main additional expenditure on education is in the 1–4 age group, and amounts to NIS 500 per child.

**Table 5**  
**Regression on monthly education expenditure \*, 2011**

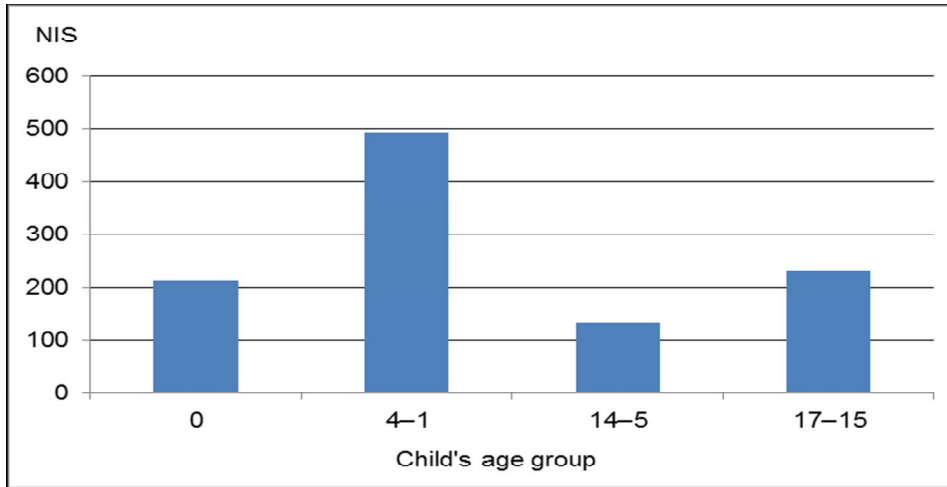
	Education expenditure
Number of children aged less than one year	213***
Number of children aged 1–4	492***
Number of children aged 5–14	133***
Number of children aged 15–17	233***
Years of schooling	109***
Years of schooling squared	-1***
Age	25***
Age squared	-0.322***
No. of wage earners	320***
Constant	-1,620***
<b>N</b>	<b>3,357</b>
<b>R<sup>2</sup></b>	<b>0.214</b>

\* Data in the table are the regression coefficients.

\*\*\* Indicates significance of 0.01.

**Figure 12**

**The effect of a child by his age group on the rate of monthly expenditure on education, 2011**



**SOURCE:** Based on Central Bureau of Statistics Household Expenditure Survey data.

#### **d. Price increases over time**

Figure 13 shows the development of prices in the consumption baskets of different groups relative to the Consumer Price Index (CPI). The price indices derived from these weights over the last three decades have not differed significantly from one another over the past twenty years since the increase in the prices of housing and education, which has the greatest weight among young families, corresponds with the increase in the price of healthcare, which has a greater weight among families without children.<sup>12</sup>

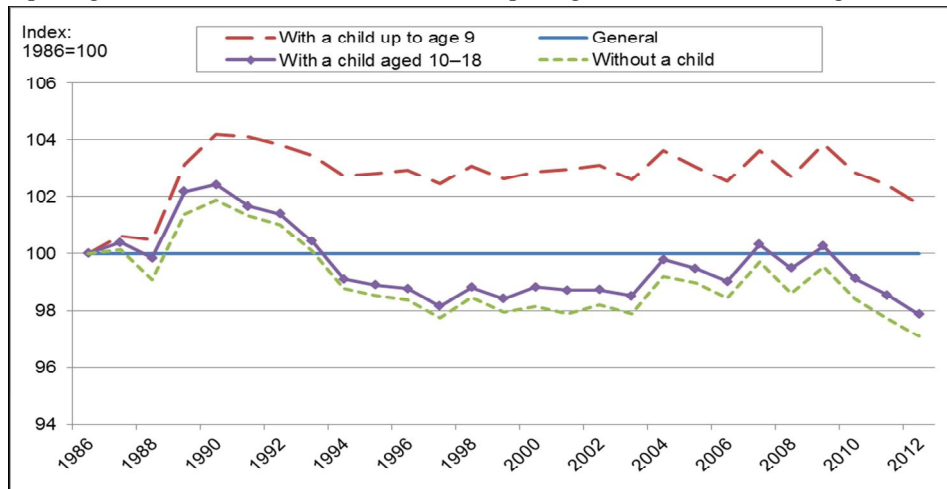
<sup>12</sup> All of the data in this Section are based on Household Expenditure Surveys, which present a picture for a particular point in time. Therefore, the analysis of “families without children” relates to families that did not have children below age 18 at the point in time at which they were sampled for the Survey.



**Figure 13**

**Household price indices relative to the Consumer Price Index, 1986–2012**

Up to age 65: without children, with children up to age 9, and with children aged 10–18

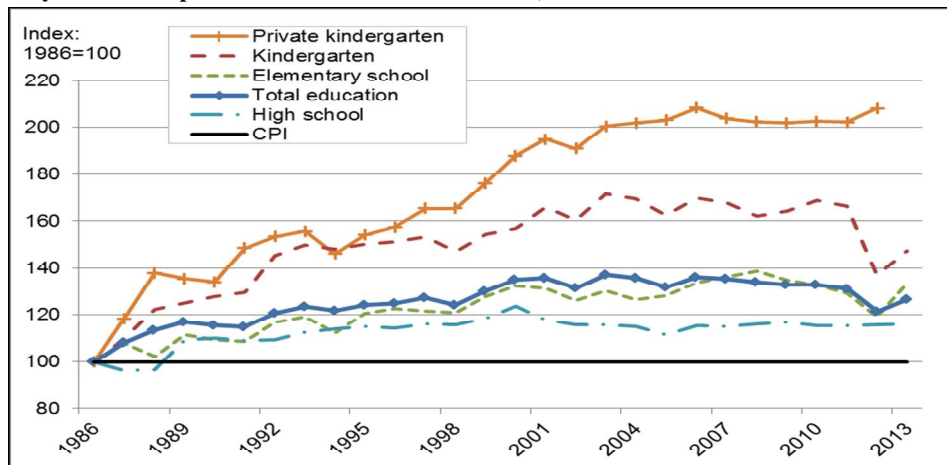


SOURCE: Based on Central Bureau of Statistics data.

Figure 14 presents the development of the various components of the education price index. The Figure shows that the relative price of education services rose in the 1980s and 1990s, but in the last decade and in the period preceding the social protest the increase came to a halt, as evident in Table 4.

**Figure 14**

**Key education price indices relative to the CPI, 1986–2013\***



\* Private kindergartens until 2012.

SOURCE: based on Central Bureau of Statistics data.

Until 1995 the nominal price of kindergartens and private kindergartens increased at the same rate, but after this the price of private kindergartens rose more rapidly. In 2012, the price of non-private kindergartens dropped by 16.4% only to increase again by 9.8% in 2013. In 2012, the price of private kindergartens increased by 4.6% (there are no figures for 2013) and the cost of elementary school declined in 2012 by 6.3%, although it rose again in 2013 by 14.2%.

### 3. WORKING PARENTS IN ISRAEL – EMPLOYMENT AND WAGE CHARACTERISTICS

**Table 6**  
**Composition of the studied population, 2004 and 2012**

	Married up to 10 years with children up to age 9		No children	
	2004	2012	2004	2012
<b>Percentage of working households*:</b>	79.3	88.5	59.6	66.2
<i>Of which:</i>				
Jews	75.6	79.6	87.2	85.9
Arabs	17.7	15.9	6.3	7.8
Other religions	6.7	4.5	6.5	6.2
Immigrants since 1989	13.9	15.6	20.5	21.0
Ultra-Orthodox	5.7	7.7	1.4	2.2

\*A working household with monthly income from work of at least NIS 1000 in 2010 prices.

**SOURCE:** Based on Central Bureau of Statistics Household Expenditure Survey data

In addition to the relatively high level of family expenditure while children are at home, as discussed above, the employment and wage patterns of parents who work persistently during their working life are also an important factor to be considered in formulating the desired policy relating to support for families at this stage of their life. In terms of standard per capita income in a household, the standard of living is lower while there are children at home due to the number of people that make up the household. Assuming that most parents have a strong, on-going relationship with the labor market, accumulating human capital and higher wages over time, then the gap between the possible standard of living when the children are being raised and that later in life becomes even more acute. This gap increases in view of the common path of mortgage repayments in which most of the mortgage is repaid in the years when young children are part of the household (Brender, 2010).

To examine the employment characteristics of young parents in Israel, and particularly the development of their employment and wages before and after they become parents, we use a database derived from the tax returns of salaried employees in Israel. This database includes returns filed with the tax authorities by employers (Form 126) for a random sample of 10 percent of salaried employees. Information is provided on each employee, and the wages he received, for each of the years 2001–2011. The

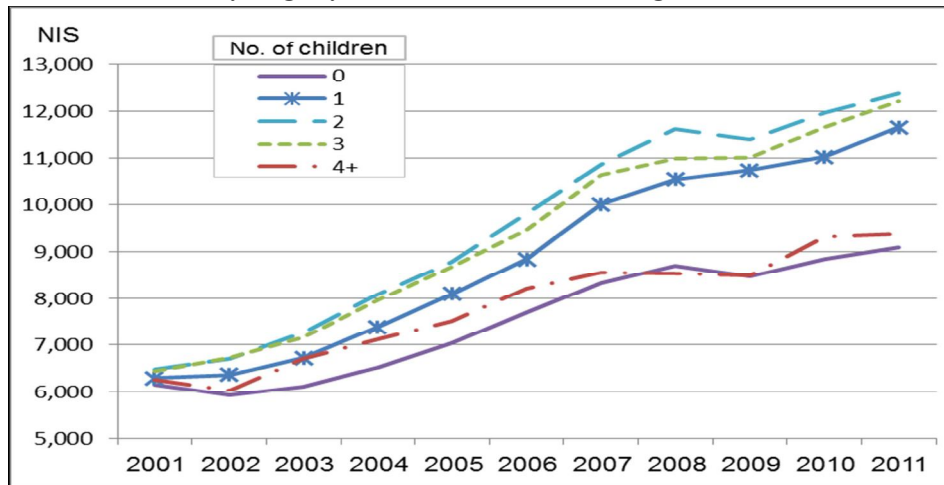
data also include information on the employee's partner, and the file is integrated with data from the population registry, providing information on the number and age of the employee's children, including those over the age of 18, as well as any changes in family status. This database allows us to track the employment and wage development of young employees while they become parents, and compare them with other salaried employees who are not parents. The size of the sample—more than 300,000 observations—also allows us to analyze trends within small age groups.

The analysis presented below shows that young parents in Israel are an integral part of the labor market, and that both parents maintain full-time or close to full-time employment, even during the initial parenting years, as their salaries increase steadily. Furthermore, the salaries of young fathers increase more rapidly than those of their peers who are not parents. Figure 15 tracks salaries over the last decade of salaried men in the 25–29 age group without children at the beginning of the period, and Figure 16 tracks the salaries of men who were aged 30–34 at the beginning of the decade. The selected sample comprises employees whose wages at the beginning of the period were in the 25<sup>th</sup> to 75<sup>th</sup> percentiles of salaried employees in that group, since in this study we have chosen to focus on the center of the distribution rather than on weaker populations.<sup>13</sup> Both Figures clearly show that the wages of those who became fathers during the decade increase more than those who did not have children, and that the progression of the wage path correlates positively with the number of children in families with 1–3 children (all born within the 10-year period). The wage levels of the young fathers are such that for the most part (about 75 percent of the total population under discussion, not just in the sample of selected income levels) they are above the tax threshold even at the beginning of the period, and most of them pay significant rates of tax at these ages. Figure 16 also shows that the wages of those over age 30 who became parents was higher at the beginning of the decade (before they became parents) than that of those who did not become parents later on.

Clearly, we cannot draw causal conclusions from these findings. Perhaps those with higher salaries feel more financially secure in becoming parents, or it may be that parenthood pushes young fathers to invest more in their work. Nevertheless, clearly those who became parents during this decade are also those who advanced more rapidly up the salary ladder.

<sup>13</sup> A discussion of the lower part of the distribution and ways of helping working families in this group can be found in Brender and Strawczynski (2006).

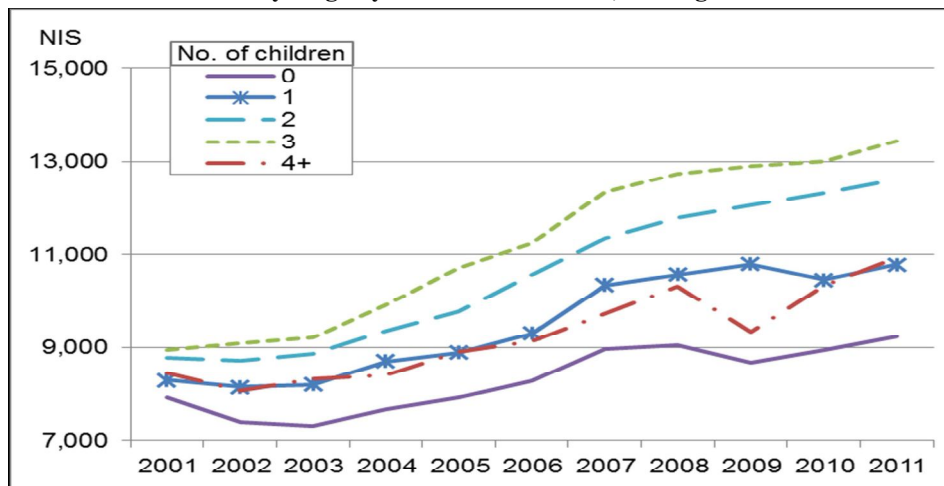
**Figure 15**  
**Path of real monthly wage by number of children, men aged 25–29\***



\* Number of children in 2011, salary in 2010 prices. Men who were in the 25<sup>th</sup> to 75<sup>th</sup> wage percentiles in 2001, at age 25–29 with no children.

SOURCE: Based on the Bank of Israel's database of salaried employee reports.

**Figure 16**  
**Path of the real monthly wage by number of children, men aged 30–34\***



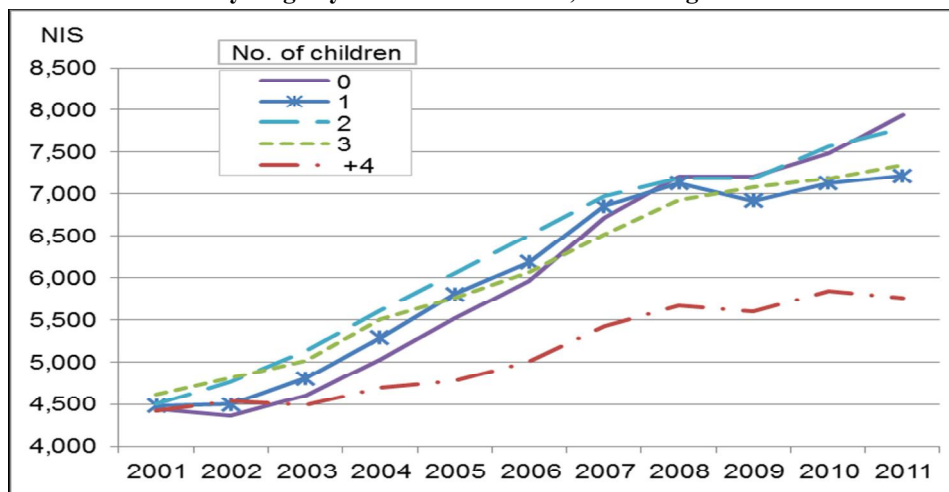
\* Number of children in 2011, salary in 2010 prices. Men who were in the 25<sup>th</sup> to 75<sup>th</sup> wage percentiles in 2001, at age 30–34 with no children.

SOURCE: Based on the Bank of Israel's database of salaried employee reports.

Women who became mothers when they were relatively young earn less than women who did not become mothers (Figure 17). The disparities, which are not great or systematic, may indicate a tendency on the part of such mothers to invest less in their careers so as to devote more time to the home and children. The implication is that families in the early stage of parenthood invest more in multi-tasking, or face a considerable expense in providing proper care for their children while working outside the home. This picture is even clearer among women who have their first child when they are older (those who are not mothers at age 28). Here, the future mothers earn more than those who are not mothers at the beginning of the period, but over time they progress more slowly along the wage scale and fall behind women who do not become mothers (Figure 18). Nevertheless, mothers' salaries continue to increase significantly throughout the early years of parenthood.

**Figure 17**

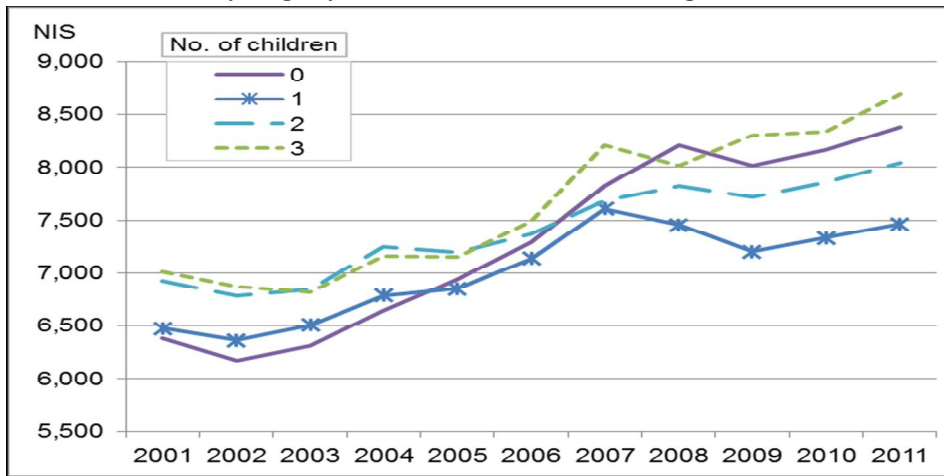
**Path of real monthly wage by number of children, women aged 23–27\***



\* Number of children in 2011, salary in 2010 prices. Women who were in the 25<sup>th</sup> to 75<sup>th</sup> wage percentiles in 2001, at age 23–27 with no children.

SOURCE: Based on the Bank of Israel's database of salaried employee reports.

**Figure 18**  
**Path of real monthly wage by number of children, women aged 28–32\***

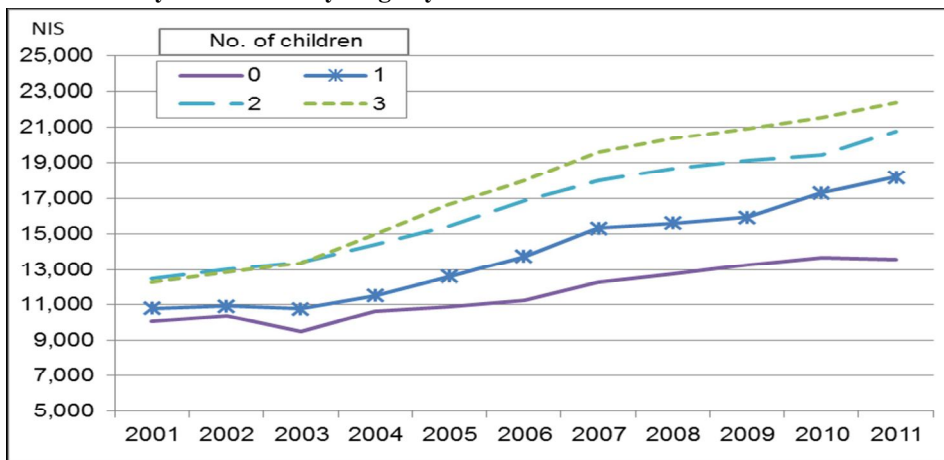


\* Number of children in 2011, salary in 2010 prices. Women who were in the 25<sup>th</sup> to 75<sup>th</sup> wage percentiles in 2001, at age 28–32 with no children.

**SOURCE:** Based on the Bank of Israel's database of salaried employee reports.

Figure 19 shows that despite the relatively slow growth of mothers' salaries, total family income from wages is higher, and increases more rapidly, among families with children.

**Figure 19**  
**Path of family's real monthly wage by number of children\***



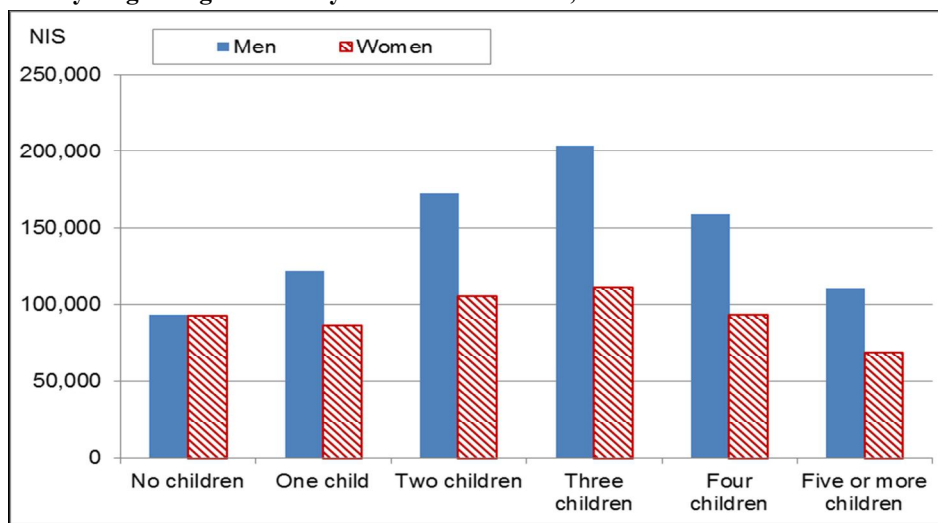
\* Number of children in 2011, wage in 2010 prices. Married couples with no children in 2001, where the man was in the 25<sup>th</sup> to 75<sup>th</sup> income percentile and aged 25–29, in 2001.

**SOURCE:** Based on the Bank of Israel's database of salaried employee reports.

Figure 20 shows that the stronger wage increase dynamic of fathers in their twenties and thirties is translated into higher wages among the older age groups, when the children are grown up. The wage level also correlates positively with the number of children, except for fathers of 4 or more children, whose salaries are lower than those of fathers to 3 children. Among mothers, although their wages increase less than those of other women in their childbearing years, the gap seems to close in subsequent years so that in the 40–55 age group their wages exceed those of women who have not become mothers. Here too, we can see that for most of the population—mothers of up to four children—there is a positive correlation between the number of children and salary. It follows that working parents are a group that, when older, are in the higher tax-paying brackets.

**Figure 20**

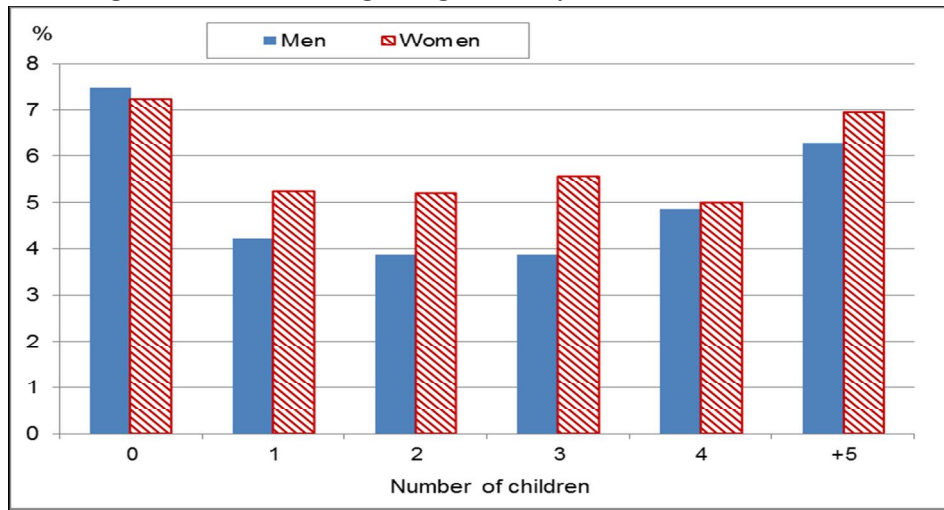
**Yearly wage at ages 40–55 by number of children, 2011**



SOURCE: Based on the Bank of Israel's database of salaried employee reports.

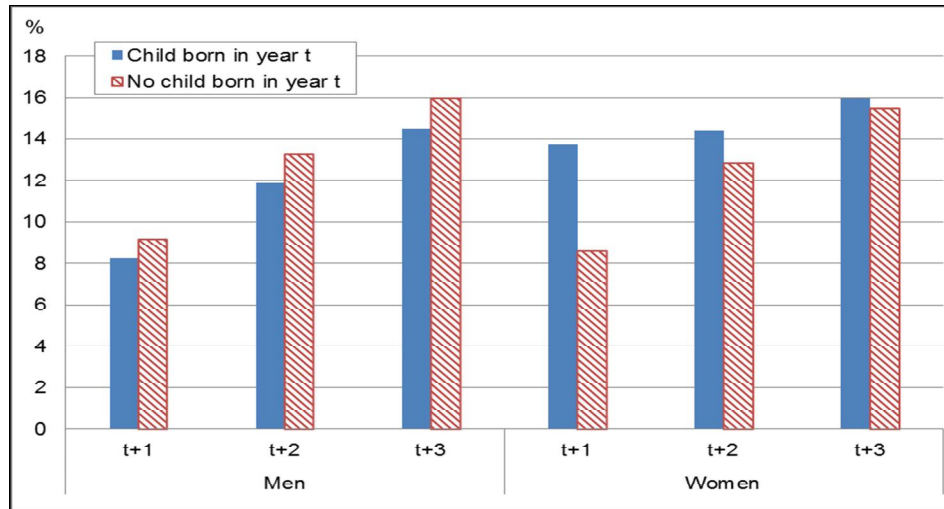
So far, the data have addressed the wages of those who are persistently employed. Figure 21 shows that parents—men and women—are more stable employees, and the probability that they will stop working is lower than that of non-parent employees. Figure 22 shows that even during a period perceived as critical in female employment—the years immediately following births—the probability of opting out of work is small. Although women tend to stop working for a given period after they have given birth at much higher rates than women who have not given birth, two years later the **cumulative** probability of women who have or have not given birth opting out of work equalizes. Regarding fathers, the picture is even clearer and the birth of a child reduces the probability that they will stop working.

**Figure 21**  
**Percentage of those not working\* at age 50–55 by their number of children**



\* Percentage of those not working in 2011 who in 2001–2003 were 40–45 years old and worked.  
 SOURCE: Based on the Bank of Israel's database of salaried employee reports.

**Figure 22**  
**Percentage of those not working one and two years after the birth of a child\***  
**Average 2000–2011**



\* Employee with salary of more than NIS 5,000 per annum, including those moving to self-employment.

SOURCE: Based on the Bank of Israel database of salaried employee reports.



Figure 23 shows that although women who worked before giving birth reduce their work schedule in the year of giving birth (paid maternity leave is deemed a work period in employers' reports), and to some extent also in the following year, two years later they return to a scope of employment (with respect to the number of months) similar to the level prior to giving birth, and at a similar monthly wage, confirming that they also do not significantly reduce their work schedule. The scope of employment among fathers is almost unaffected in the short term by the birth of a child, increasing slightly after the birth.

**Figure 23**  
**Monthly salary and months of work relative to the year of birth of a child**



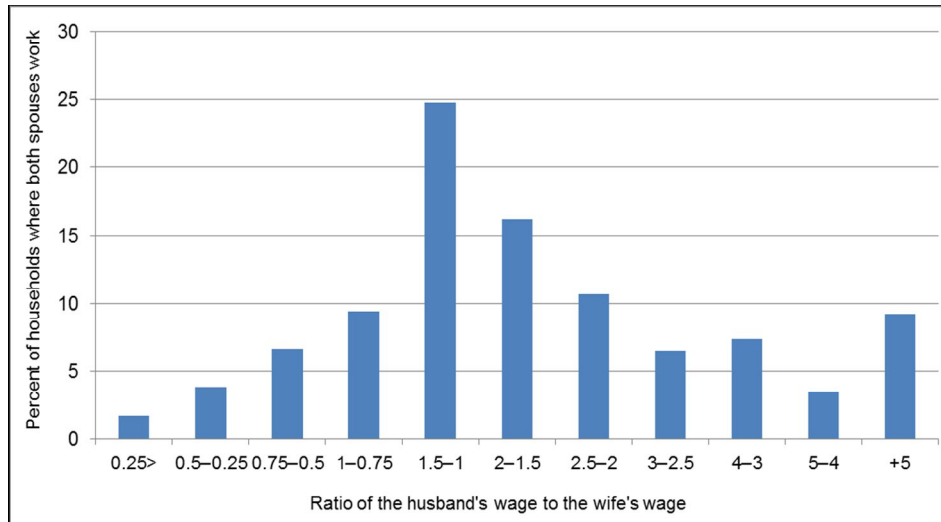
SOURCE: Based on the Bank of Israel database of salaried employee reports.

When formulating policy toward working parents, policymakers must also understand the way in which wages contribute to family income, particularly in Israel where the tax rates are gender dependent. Figure 24 shows that where both partners work, in most instances (80 percent), the man earns more than the woman, and in many families much more than the woman. This is in addition to the 20 percent of families in which only the husband works. This means that in many cases, the focusing of tax benefits on women only (from 2012, fathers of children aged up to 3 also receive tax credit points) renders them ineffective, given that the women, particularly in the years in which there are young children in the household, do not even reach the tax threshold, and certainly do not manage to utilize all the tax benefits for their children, while the fathers are paying income tax (Table 7). The table shows that only 19 percent of mothers to children over the age of 5 (26 percent of working mothers with children in

this age group) fully utilize the tax benefits for their children. Even if we add a further 19 percent of mothers who utilize some of the benefit and about 5 percent of mothers who were paid through the Earned Income Tax Credit Program, then overall, less than half of the families with children, and particularly those in the middle income range, were entitled to any benefit at all.

**Figure 24**

**Distribution of the ratio between men's and women's wages where both partners work**



**SOURCE:** Based on the Bank of Israel database of salaried employee reports.

**Table 7**

**Percentage of mothers who do not utilize the tax benefits in respect of their children (of all families with children aged 5–17)**

Number of children	Mother Not working	Working but not utilizing personal tax credit	Utilizing only part of the tax credit in respect of children	Utilizing the tax credit in respect of children	Father exceeds the tax threshold and the mother is left with unutilized tax credit in respect of children
1	20.0	39.6	10.9	29.5	51.5
2	18.7	34.1	23.3	23.8	60.2
3	29.4	32.6	21.1	16.9	64.7
4	36.8	39.1	16.4	7.7	55.4
5+	50.7	30.7	15.5	3.1	53.2
All mothers	27.3	35.1	18.6	19.0	58.4

\* Among families with children aged 5–17 and with income from work of more than NIS 1000 per month.

#### 4. GOVERNMENT POLICY IN ISRAEL AND ELSEWHERE FOR ASSISTING YOUNG FAMILIES

The foregoing analysis shows that household expenses are higher while children are part of the household than in the preceding or subsequent period, while at the same time family income is relatively low. The material standard of living of young families is therefore low in comparison to other periods of life. For this reason, government intervention in the form of tax benefits, special allowances and subsidized education and other services for young families is accepted practice in many countries.

In this section we compare the scope of the benefits given to young families in Israel with the other OECD countries for which reasonable quality data are available. Almost all the OECD countries provide government financed education services for children aged 5 to 18, and we therefore ignored this subject, although there may be differences in the quality and scope of the service in different countries so that parents may have supplementary expenses. Additionally, given that this study focuses on middle-class working parents, and less on weaker socio-economic groups, the following quantitative comparison addresses those benefits given through the tax system and universal allowances rather than welfare allowances that are subject to means testing and paid to small groups at the bottom of the income scale.

To more accurately compare the data, we use an OECD database and simulator that include information about the different benefits given to households with different levels and composition of income. Using this database, households may be characterized by each partner's income level (as noted, tax rates in Israel are generally gender dependent) and total net income can be compared for households with the same income, with and without children.<sup>14</sup> Due to availability of the data we focus on two-children families, although insofar as the available information allows such testing, the results are not qualitatively sensitive where the basis of the comparison changes to three children.

In 2012, following the recommendations of the Trajtenberg Committee, parents in Israel received two additional financial benefits, but their impact—particularly in the middle and upper sections of the income distribution—is limited. The increase in the Earned Income Tax Credit (negative income tax) improves the relative position of families with low-income working mothers<sup>15</sup>, but has no effect on families in the middle and upper parts of the income distribution.<sup>16</sup> A more effective measure to assist the middle class was the granting of tax credit points to fathers of children up to age 3, but from the outset this is limited to a small group among all parents.

<sup>14</sup> Specifically, we compare the difference in net income between families with the same income from work, where one family has no children and the other has two children aged 4 and 6.

<sup>15</sup> About 13 percent of married mothers in Israel are eligible for the Earned Income Tax Credit according to their income and that of the family unit.

<sup>16</sup> About 75 percent of the Earned Income Tax Credit payments go to the two lower deciles of salaried workers in terms of equivalized income, and the rest goes to the bottom of the third quintile (Bank of Israel, Recent Economic Developments, December 2013).

Table 8 shows family “types” that represent about 60 percent of working families in Israel (families in which at least one partner works for at least half the monthly minimum wage). These types were categorized by household income and their weight in the population was derived from the proximity of the households in the population to these characteristics. The Table shows a range of family types with respect to the husband’s and wife’s salary, the weight of each type in the population of working families with children, and the disparities in benefits between Israel and the OECD average for two children. The Table shows that in Israel, most family types receive benefits that are significantly lower than in other OECD countries. The total of the disparities in benefits between Israel and the other OECD countries is roughly estimated at about NIS 3.7 billion, about 0.35 percent of GDP in 2013.

**Table 8**

**Comparison of the difference in financial benefits given by the government in Israel and in the OECD for families with different income characteristics**

Family type	Weight (Percentage of working families with children, that are of similar type)	Husband's income (Percentage of average manufacturing worker's wage)	Wife's income (Percentage of average manufacturing worker's wage)	Benefit disparity (Between Israel and OECD average* - percentage of family type's income)
1	25.8	67	0	13.3
2	8.0	67	50	5.2
3	5.9	100	0	6.5
4	2.9	125	0	4.4
5	4.8	75	67	3.9
6	4.8	100	50	3.6
7	1.9	175	0	2.7
8	1.6	100	67	2.8
9	0.3	167	50	2.4
10	2.0	125	67	2.3
11	0.8	175	67	1.9
12	3.3	75	100	0.4
13	2.4	100	100	0.2
14	1.7	175	100	0.1

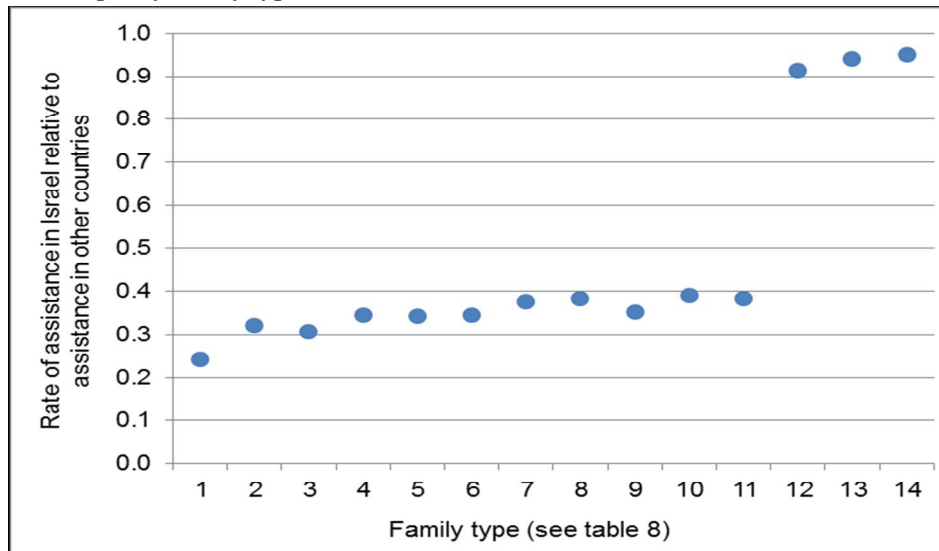
\* Israeli data is for 2013; OECD data is for 2011.

For example, Figure 25 shows the size of the financial benefit given to a family with two children, aged 4 and 6, in Israel compared to the OECD average. The benefit rate is lower in all family income brackets in Israel than the OECD average. In most family types, those where the wife’s salary is lower than 80 percent of the average wage for a manufacturing worker (which is about NIS 10,000 per month in Israel), the difference is significant, since most families of this type in Israel are unable to utilize the tax benefits that are only based on the wife’s salary. Moreover, Israel’s universal child allowances are significantly lower than those of other advanced economies. In families where the

wife's salary is higher and reaches the threshold for utilizing a substantial portion of the tax benefit, the gaps narrow, but only a relatively small percentage of women in Israel reach these salary levels.<sup>17</sup>

**Figure 25**

**Tax benefits and allowances in Israel as a percentage of the average assistance in the sample by family types, 2013**

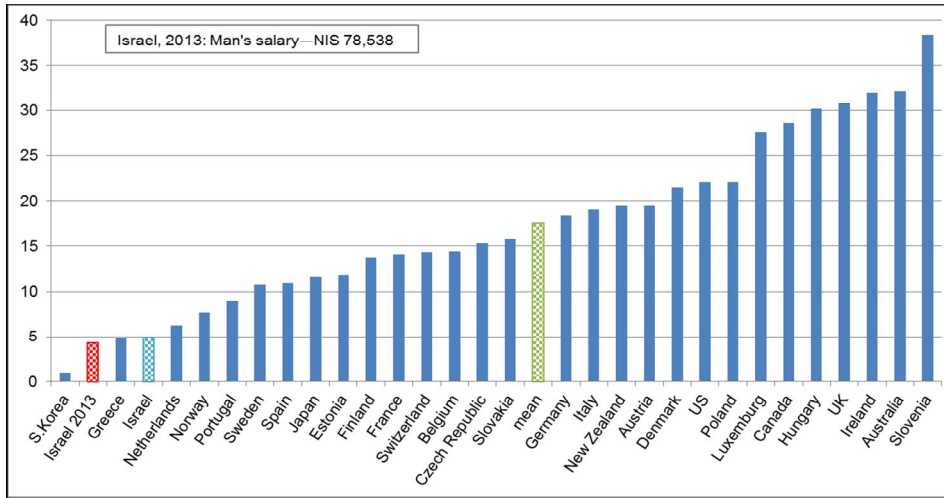


SOURCE: Based on OECD Benefits and Wages.

Figure 26 demonstrates the benefit disparities between Israel and the OECD for a family with two children aged 4 and 6, where the husband's salary is relatively low and the wife does not work. The average benefit for a family of this type in the OECD is 17 percent of its income from work, whereas in Israel the benefit is only 4 percent, and even before the last reduction in child allowances it was just 5 percent. Families with similar characteristics account for 26% of working families with children in Israel. In higher-income families, the difference between Israel and other countries in the relative size of the benefit lessens (mainly due to the increase in the denominator—data are in percent of family income), although it remains significant (Figures 26–29). The average size of the benefit for families of these types in the OECD countries is very similar to the additional expenditure that was computed in Section 2 where there are two children in the household (about 4 percent of the income for each child).

<sup>17</sup> Only a quarter of female salaried employees in Israel earn more than 90 percent of the average wage for a manufacturing worker, and only one-sixth reach the average wage.

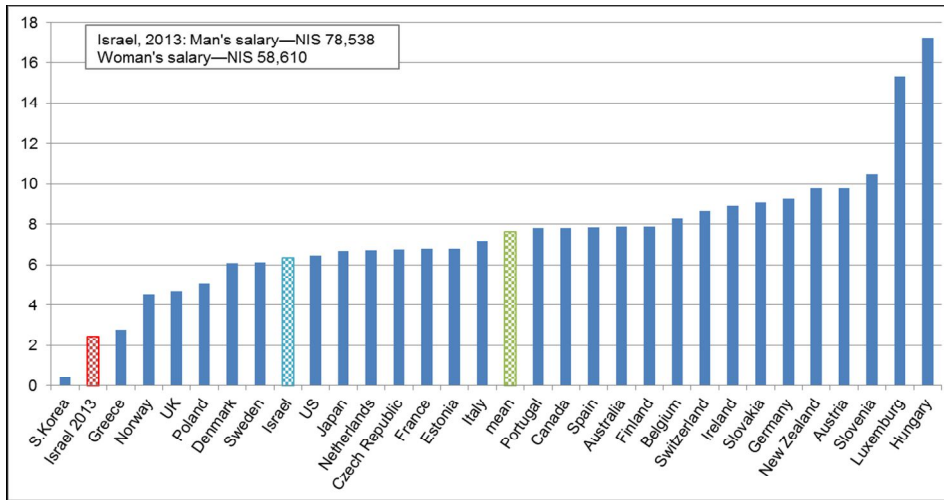
**Figure 26**  
**Tax benefits and allowances as a percentage of the average income of Type 1 families\*, 2011**



\* 2 children, ages 4 and 6, where the man earns 67 percent of the average wage and the woman does not work.

SOURCE: Based on OECD Benefits and Wages.

**Figure 27**  
**Tax benefits and allowances as a percentage of the average income of Type 2 families\*, 2011**

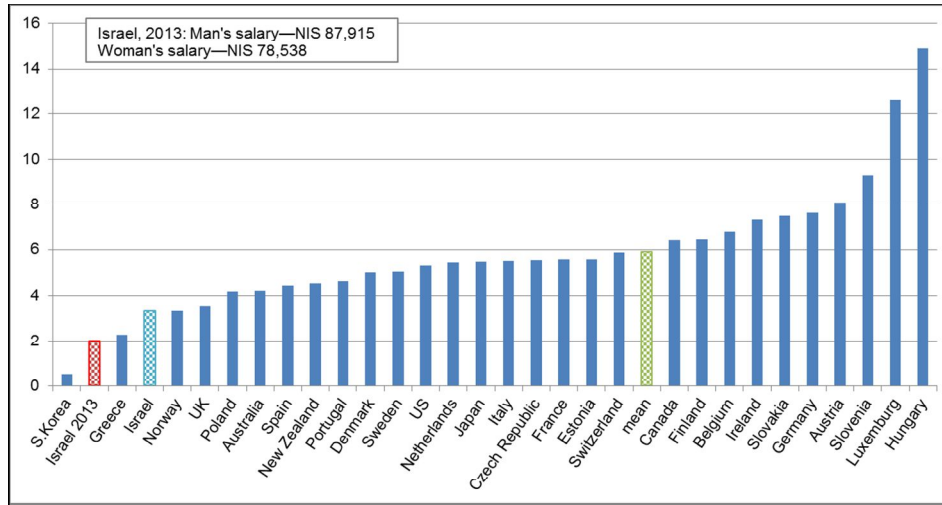


\* 2 children, ages 4 and 6, where the man earns 67 percent of the average wage and the woman earns 50 percent.

SOURCE: Based on OECD Benefits and Wages.

**Figure 28**

**Tax benefits and allowances as a percentage of the average income of Type 5 families\*, 2011**

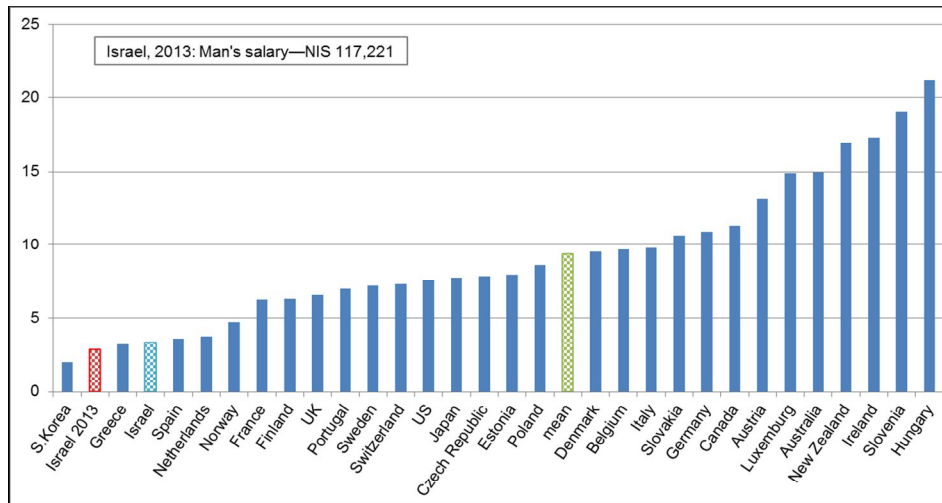


\* 2 children, ages 4 and 6, where the man earns 75 percent of the average wage and the woman earns 67 percent.

SOURCE: Based on OECD Benefits and Wages.

**Figure 29**

**Tax benefits and allowances as a percentage of the average income of Type 3 families\*, 2011**



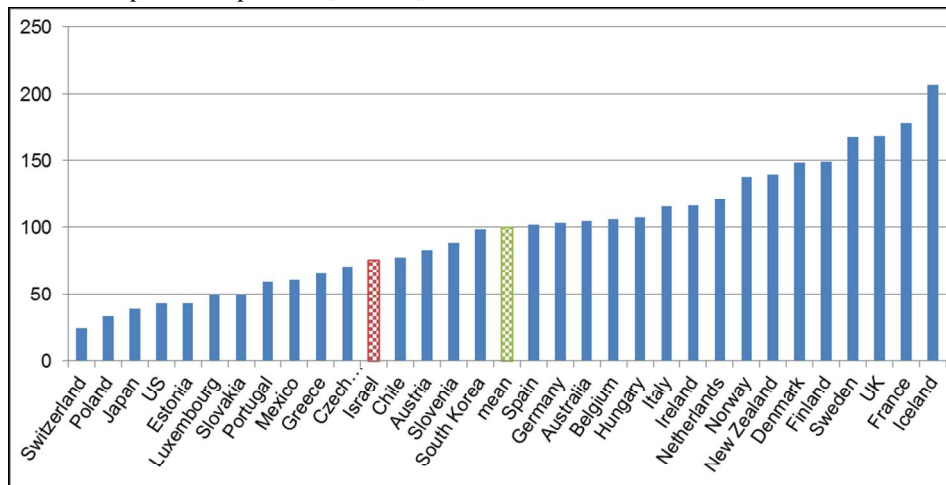
\* 2 children, ages 4 and 6, where the man earns 100 percent of the average wage and the woman does not work.

SOURCE: Based on OECD Benefits and Wages.

Forty percent of young families in Israel belong to the family types (Types 1–3) for which the difference in benefit size between Israel and the OECD is greatest (in percentage of income). There are also significant, although smaller benefit disparities for a broader range of incomes that cover an even greater percentage of families (Figure 25). It is worth noting that a “small” difference of 2.5 percent of income in a benefit to a family whose joint income is 1.5 times the average production worker’s wage, translated into NIS 375 per month (i.e. in addition to the benefit that the family currently receives). This is by no means a negligible amount and is significantly higher than, for instance, the child allowance received by that same family.

Parents in the other OECD countries receive benefits consisting not only of reduced tax rates for children and child allowances. Parents in 13 OECD countries are eligible for additional allowances for children who are over the age of 18 and into their early/mid-twenties if they attend institutes of higher education. In contrast, Israel has no such frameworks for children who are students (or are in mandatory army service). Moreover, 11 countries give various tax breaks on child-care expenses, in addition to the general tax credit and universal child allowance. This clearly demonstrates that state-funded assistance for young parents is significantly lower in Israel than in other countries, particularly for the middle class and above, and especially for children who are not in the 3–4 age group. A review of the government benefits that parents receive for education and child care (Figure 30) for children below the age of 5 shows that these benefits are lower in Israel than in the OECD. (Data for 2009 are the most up-to-date data available for this comparison, but the variable is stable.) The benefits for 6-11-

**Figure 30**  
**Government benefits for education and child care for ages 0–5**  
 Index of expenditure per child, OECD, 2009

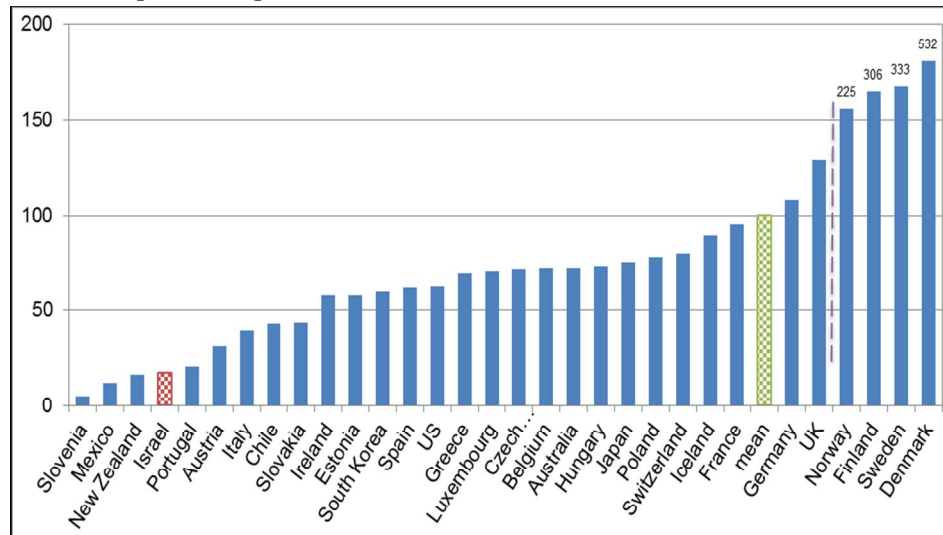


**SOURCE:** Based on OECD Social Expenditure Database and OECD Education database.



year-olds (excluding schools) are also lower in Israel (Figure 31). The difference was even greater in the years preceding the social protest and the Trajtenberg Committee recommendations with respect to tax credit points for fathers of children up to age 3, increased tax benefits for mothers, and the extension of the free education law to include 3–4 year olds. Nevertheless, the gap remains significant and indicates that Israel's policies differ from accepted standards in other advanced economies.

**Figure 31**  
**Government benefits for education and child care for ages 6–11**  
**Index of expenditure per child, OECD, 2009**



**SOURCE:** Based on OECD Social Expenditure Database and OECD Education database.

## 5. YOUNG FAMILIES: DESIRED TRANSFER PAYMENTS/TAXATION POLICY

Given that in Israel the vast majority of employees become parents at some stage, assistance for working families can improve the wellbeing of a substantial portion of the population during this period of their lives. The formulation of government policy that targets young families with temporary needs differs considerably from policy that targets populations with a typically short employment outlook and tendency to work less than full time. In the first instance, working parents may in the future be able to cover the cost of assistance they receive through the taxes they pay, as they will continue to work and for an ever-increasing wage. In the second instance there is concern that after benefitting from assistance while the children are at home, these young employees will not become part of the work force that pays the taxes to support the next generation (or repay the government debt accumulated for the assistance received).

### a. Model to develop the income of young parents

The basic model that we used for the simulation presented in this paper is similar to the model presented by Card and Ransom (2007), adapted to the case of young families.<sup>18</sup>

We assume that young couples plan the number of children they want to have in advance. Thus, parents in one-child families tend to give birth relatively late in life compared to families with three or four children, who expand their families when they are in their thirties. To simplify matters, we look at the median income—and the typical characteristics of a young couple are therefore also based on this case.

$U$  represents the benefit and  $C$  represents consumption. Given that our study does not address the impact of taxes on the supply of work, let us assume for simplicity's sake that the supply of work is fixed (and there is therefore no reason to treat it in the benefit function).<sup>19</sup> The benefit function over the life cycle is therefore:

$$U = \sum_{i=0}^n \frac{1}{(1+\rho)^i} U(C_i) , \quad U'(C_i) > 0, \quad U''(C_i) < 0.$$

$I$  represents the couple's total equivalized income. The family's budget limit is:

$$\sum_{i=0}^n \frac{I_i}{(1+r)^i} = \sum_{i=0}^n \frac{C_i}{(1+r)^i}$$

The development of  $I$  is influenced by the fixed cycle of having children, as will be explained below. Assuming that the capital market is sophisticated, and that  $\lambda$  signifies the budget limit's Lagrange multiplier, it is easy to show that the solution to the problem is:

$$U'(C_i) = \lambda$$

In other words, the family will attempt to consume a fixed amount throughout its lifetime over time.

If the benefit function is a CRRA:

$$U(C) = \frac{C^{1-\theta}}{1-\theta}$$

Then the solution is:

$$C^0 = \left(\frac{1}{\lambda}\right)^{1/\theta}$$

<sup>18</sup> In our model, the benefit is defined according to consumption. Krueger, Kahaneman, Schkade, Schwartz and Stone (2008) present an alternative approach in which a large number of parameters must be taken into account that reflect "positive" activities (of which consumption is just one) and "negative" activities—according to a model based on the sum total of the benefits during one's life.

<sup>19</sup> Brender and Strawczynski (2006) and Brender and Gallo (2009), respectively, show that the elasticity of employment and work hours to wages, and therefore also to taxes, is small in Israel, like findings from other parts of the world.

Or using the budget limit after placing the fixed consumption:

$$C^o = \frac{\rho}{1 + \rho} \sum_{i=0}^n \frac{I_i}{(1 + r)^i}$$

The formula may be further simplified if we compute the fixed income  $\bar{I}$  that tracks the changing flow of the family's income over its lifetime. In this case:

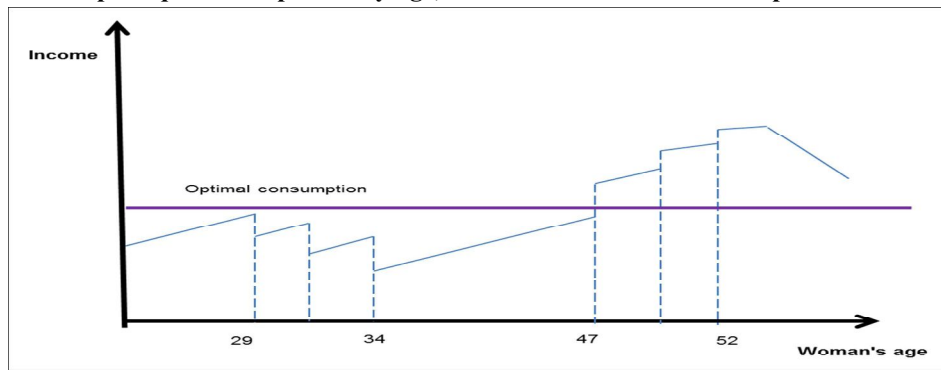
$$C^o = \frac{(1 + r)\rho}{(1 + \rho)r} \bar{I}$$

In practice, young parents do not manage to smooth their consumption due to the capital market's lack of sophistication as reflected in the high costs of obtaining loans at a young age on the basis of future income. It is therefore reasonable to assume that the development of a young family's current income will affect consumption and deviate from the optimum.

Specifically, we assume that the median family has its first child when the man is 31 years old and the woman is 29, the second child when they are 33 and 31, and the third child when they are 36 and 34 respectively. This means that the family increases in size in the 29–34 age range (according to the woman's age), and thereafter the family composition remains static until the first child is 18. Specifically, the family begins to shrink when the man is 49 and the woman is 47, and at this stage equivalized income increases. The jump in income is magnified when the man is 53 and woman is 51, and when the now not-so-young parents are 54 and 52, they once again become a two-person family.

If the capital market is limited, there will be deviations between the income profile and optimum consumption, where in the early stages the young families wish to borrow, financing their loans with their surplus income from the age of 47 on (49 for men). Figure 32 shows the process of creating equalized income compared to the optimum:

**Figure 32**  
**Income per equalized person by age, relative to smoothed consumption**



Assuming that individuals find it difficult to realize the optimum due to difficulties in borrowing in the early stages of life (inadequate guarantees) or due to the high costs, the government could introduce a scheme to provide benefits for children which is financed by taxes imposed in a later period.<sup>20</sup> A scheme of this kind is balanced with respect to the government budget and improves the benefit for families with children.

#### **b. Simulation of family income and the desired payment transfers/taxation policy**

The simulation<sup>21</sup> is based on a special Bank of Israel database that includes data from the Tax Authority in which it is possible to track the salary of individuals over a ten-year period. The review was based on a change in the median wage of 16 separate groups of types (8 for each gender) over 10 years, who were marked at the end of the sample (2011) by number of children and their age (each group comprises 200–700 individuals). To smooth the effect of the business cycle, the change in the average gross wage over 10 years was taken so that each group receives an average annual wage change over the course of a ten-year period of their lives. The combination of the wage change rates for the groups and combination of the husband's and wife's income creates a representative family throughout the working years for each type. By combining the husband's and wife's income, we obtained households in which both partners work (according to National Insurance Institute data, in about 55% of families—598,518 families—both partners work). The other families are: single-parent families (12%), two-parent families with no income provider (7%), and two-parent families with one income provider (25%). We chose not to relate to data that refer to couples who are in the younger age groups, given that after 10 years they may well have more children with the result that they change type.

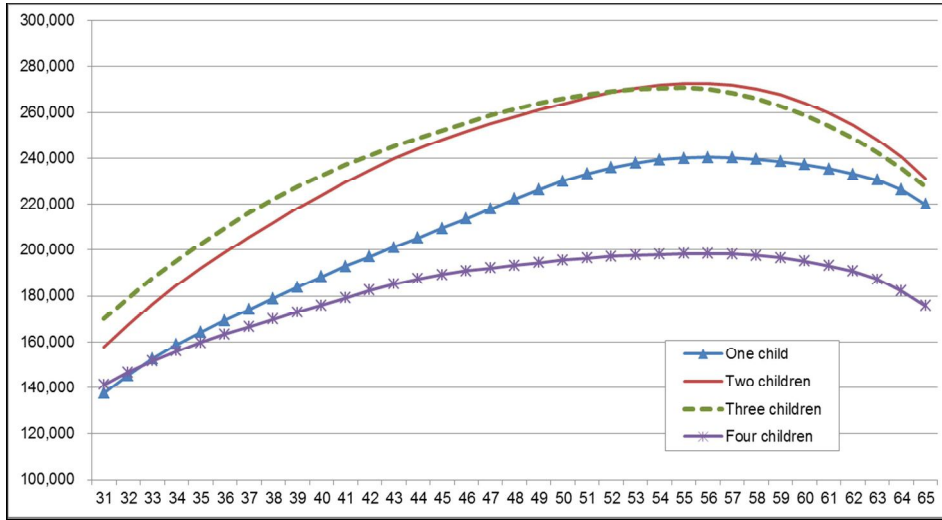
Towards the end of the working life, from the age of 55, there is a 2–3 percent annual decline in the real wages of both genders. The extent to which this decline reflects a decline in the scope of work as against a decline in hourly wage is unclear, but in terms of total family income the decline begins at around age 58. In recent years, the age of reduced employment and wages has been delayed due to an increase in the age of retirement (Bank of Israel Annual Report, 2012, Chapter 8).

The following Figure shows annual gross family income according to age.

<sup>20</sup> To estimate the extent to which young families are supported by their parents, we used the sections on transfers between households from the Central Bureau of Statistics Household Expenditure Survey. Between 2004 and 2011, about 6% of young, working families received a transfer from another household. The average amount of a transfer to such a household was NIS 1,500 (in 2010 prices). About 18% of working families over the age of 60 transferred an average of NIS 2,000 to other households. There was no significant variation between years. We note that ideally, the optimal government program should have taken these data into account, as well as data on accessible loans (including the demand for guarantors), but such a database is not accessible.

<sup>21</sup> A change in the benefits may have an impact on birthrates and on entry to and exit from the labor market, but these effects are relatively small. For an estimate of the impact of allowances on the birthrate, see Frish (2004) and Cohen, Rajeev and Romanov (2007); for the effect of wage subsidies on employment, see Brender and Strawczynski (2006) and Brender and Gallo (2009).

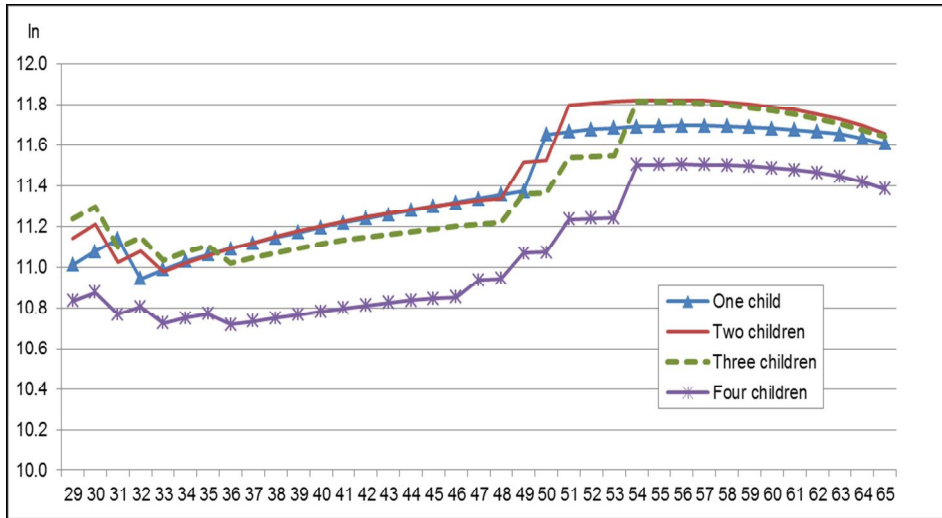
**Figure 33**  
Annual income for a working family over the main working years



SOURCE: Based on the Bank of Israel database of salaried employee reports.

The log of income can be drawn according to equivalized income plus child allowance (based on a monthly allowance of NIS 140 per child):

**Figure 34**  
Log of per capita gross income by age and number of children



SOURCE: Based on the Bank of Israel database of salaried employee reports.

This Figure is similar to the normative drawing of the model presented in Section 3.1, where the differences arise from each family type: A family with one child has the child at age 31, whereas families with more children become parents at age 29.

### The simulation

The simulation is based on four family types—one child, two children, three children and four children. A review of the percentage of salaried employees aged 50 found that the following weights can be built from among the relevant families:

No. of children	Weight (percent)
1	10
2	30
3	40
4	20

The policy simulations are based on tax benefits for parents of children up to age 18 that are paid for from the taxes of those families. Regarding implementation of the policy, we assume that when the government passes the reform, it is funded by a simultaneous increase in the income tax rate to balance the policy over time. This means that some of the individuals (the older generation) will pay the tax but not take advantage of the benefit (the "Dessert Generation"<sup>22</sup>). Alternatively, we could assume that the benefits are given at the time of the reform and the taxes will be paid in future by those individuals. In our opinion, this option, presented in the Appendix, is impractical for two reasons: (a) it requires an increase in the national debt over time and will eventually require a further increase in taxes; (b) it may lead to potential inconsistency over time with respect to decisions made by the present generation's future political leaders, who may decide to put a stop to continuing the benefit for the next generation when it is time for the present generation to foot the bill. This is due to the desire to spread the tax burden on a broader population; (c) taxes that are too high may eventually harm the incentive of parents to work, thus reducing the tax base (a type of moral hazard).

It is difficult to foresee whether the proposal is something that can be implemented politically and whether a coalition will be formed for its implementation. If the median voter is the young parent, the ability to implement the proposal will increase. However, since a gradual process is underway in Israel whereby the population is aging, it depends on the extent to which the young parent is considered the median voter in an election campaign. A precise characterization of the median voter is beyond the scope of this study. Additionally, the specific design of the program is also important, since in

<sup>22</sup> This term is used as a parallelism with the Jewish generation that spent its life in the dessert on the way between Egypt and Israel without succeeding to materialize a life experience at the new country.

reality, differences in the size of the (capitalized) benefit are possible between families with different numbers of children.<sup>23</sup>

For the purpose of the simulation, four different policy options were examined:

1. A tax break of 2.5% of the wage per child and the public purse will be balanced by tax at 8% of the wage to be paid from when the youngest child in the family reaches the age of 18 until the parent retires.
2. A tax break of 4% per child and tax will be set at 13% from when the youngest child in the family reaches the age of 18 until retirement.
3. Differential tax benefit and tax collection according to the child's age (based on the findings of estimated expenditures by age of the children), according to the following table:

	Age of child	Benefit / tax rate (tax marked with -) (percent)	No. of years
Benefit	0–8	4	9
	9–14	2	6
	15–17	3	3
Tax	18–20	-3.25	3
	21–24	-6	4
	25–29	-3	5

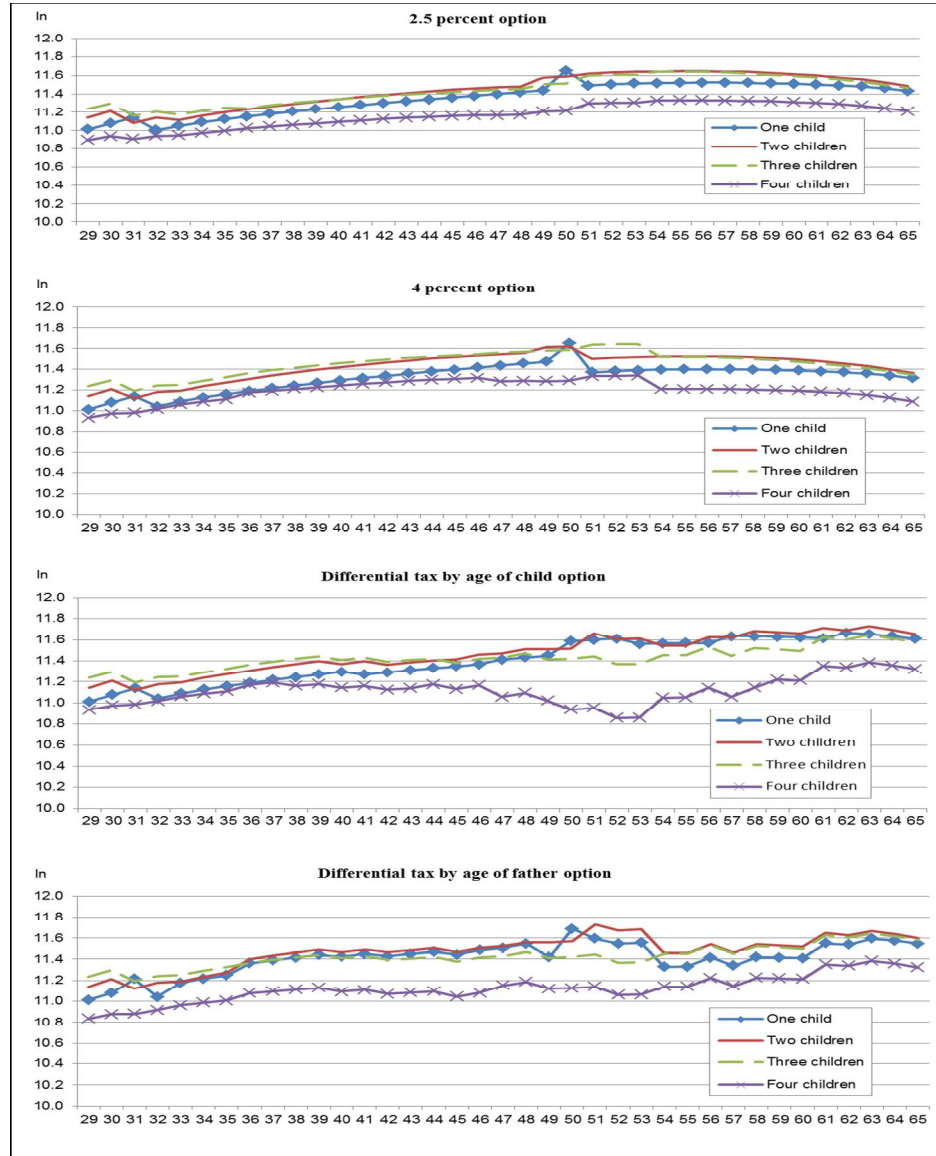
4. Differential tax benefits and tax collection by age of the parent is based on the tax path of the typical family with three children, according to the table in the previous option. This option is based on the previous option, but assumes that tax benefits may be given for each child and that there are no tax revenues on children. The tax path is therefore converted according to the age of the parents of the median family—type-3 family.

The tax benefits in all the above examples can be applied by means of redeemable tax credit points.

<sup>23</sup> Identifying the “cross-subsidy” between families by the number of children is not possible without characterizing the specific design of the policy that will be chosen. The Earned Income Tax Credit program, for instance, set out that a larger subsidy would not be given to families with 4 or 5 children than the subsidy given to families with 3 children. In contrast, child allowances are calculated equally for each child, and in the past, a larger grant per child was given to families with a high number of children.

The results:

**Figure 35**  
Log of per capita income for each option





Based on the model presented in Section 3.1, the benefit is measured according to a CRRA function, from which it emerges that:

$$U'(C) = C^{-\theta}$$

where three cases were selected:  $\theta = 1$  (logarithmic),  $\theta = 2$ , and  $\theta = 5$ . To calculate the improvement in the benefit, we considered a case in which there is no capitalization (preference rate for the present is zero), and two additional cases in which the capitalization rates are 3 and 5 percent respectively. Table 9 shows the impact of the policy on the amount of the benefit over life, with a weighted average of the family types (in percent).<sup>24</sup> For example: the cell showing CRRA benefit with a coefficient of 5 shows that application of the proposed policy will improve the amount of the benefit where there is no capitalization by 43.22 percent relative to conditions if the policy is not applied.<sup>25</sup>

**Table 9**  
**Impact of government policy (percent)**

	Uncapitalized	3% capitalization	5% capitalization
Simulation of 2.5%			
logarithmic	0.3	0.6	0.8
CRRA=2	6.5	9.1	10.2
CRRA=5	43.2	44.9	45.0
Simulation of 4%			
logarithmic	0.4	0.9	1.1
CRRA=2	7.7	12.1	13.9
CRRA=5	50.0	54.3	55.4
Differential tax by age of child			
logarithmic	0.3	0.7	0.9
CRRA=2	6.4	9.9	11.7
CRRA=5	42.3	47.5	49.5
Differential tax by age of father			
logarithmic	0.3	0.7	0.9
CRRA=2	6.8	10.4	12.0
CRRA=5	43.7	47.0	47.9

<sup>24</sup> The impact of government policy on each type separately is presented in the Table in Appendix 3.

<sup>25</sup> Theoretically, the benefit values of the CRRA function can be distorted by adding a constant, but from the perspective of the applied policy, the more relevant variable is the marginal benefit. The benefit improvement is therefore measured as the sum of the marginal benefits—and the addition of the constant is insignificant. Where the source of the change is a change in prices, the improvement in benefit can be qualified according to monetary values using the Compensating Variation approach. Our case refers to a direct financial benefit and we therefore focus on measuring the benefit improvement. The benefit from smoothing will continue to be received for each benefit function characterized by a decreasing marginal benefit.

In order to know whether government policy is successful, we need to compare the results with the optimum state of affairs, in which consumption can be fully smoothed according to the solution proposed in the above model. Table 10 shows the optimum rates of benefit improvement obtained where income is smoothed evenly over life.

**Table 10**  
**Benefit improvement where consumption is smoothed (percent)**

	Uncapitalized	3% capitalization	5% capitalization
Logarithmic	0.4	1.1	1.5
CRRA=2	8.3	14.9	18.3
CRRA=5	92.5	61.3	65.1

This table shows that government policy significantly advances the families towards achieving the optimum consumption smoothing, although the improvement varies depending on the assumptions relating to the type of benefit function and rate of time preference used for the capitalization. We can understand the contribution made by the transfer payments/taxation policy by comparing the benefit improvement presented in Table 9 with the improvement that might have resulted in the ideal situation—as presented in Table 10. Table 11 shows the benefit improvement as a result of applying the policy relative to the improvement that would have been attained had the individuals been successful in reaching the optimum, while fully smoothing consumption over time. If we look at the case with no capitalization (given that the time preference rate is zero) and the risk aversion equals 5, then the government's transfer payments/taxation policy advances the families half-way toward the option of full smoothing.

**Table 11**  
**The benefit gap as a percent of the optimum**  
(percentage improvement following application of the policy relative to the optimum)

	Uncapitalized	3% capitalization	5% capitalization
Simulation of 2.5%			
Logarithmic	77	55	50
CRRA=2	78	61	55
CRRA=5	47	73	69
Simulation of 4%			
Logarithmic	93	77	72
CRRA=2	93	81	76
CRRA=5	54	89	85
Differential to age of child			
Logarithmic	76.0	61.0	58.0
CRRA=2	77.0	67.0	64.0
CRRA=5	46.0	78.0	76.0
Differential to age of father			
Logarithmic	82	65	62
CRRA=2	82	69	65
CRRA=5	47	77	74

We emphasize that this comparison is provided for illustrative purposes only. In practice, full smoothing cannot be applied, as individuals are unable to obtain loans during the periods when they are most needed due to their inability to provide guarantees. The benefit improvement in Table 11 should therefore be viewed as the lower limit of the estimated benefit improvement achieved by the policy.

## 6. SUMMARY AND CONCLUSIONS

In the wake of the social protest and the government's response, in the form of the Trajtenberg Committee recommendations, our discussion centers on the desired policy for young families. Compared to families without children, families with young children face considerable expenses at a time when their income is low relative to their lifetime income profile, and this in turn may pose liquidity constraints. One possible solution is a sophisticated capital market which allows family consumption to be smoothed over different periods through loans provided while the children are young, which are then repaid in later periods when the parents' income is higher and some of the children have already left home. Where the capital market does not facilitate loans of this kind, some families may encounter liquidity problems. One such example is the rising cost of housing in recent years which has made it more difficult for young families to buy their homes, forcing an additional 11,000 families to live in rented accommodation. In contrast, the percentage of home-buyers among other family types remained stable over time. A similar situation was observed when the cost of housing increased in the 1990s.

An alternative solution to the temporary liquidity problem is fiscally balanced government intervention. This involves granting benefits to young families when their expenses are high, which are financed by taxes imposed on the parents' income at a later stage when wages increase and the family is smaller. Our findings show that a balanced policy of this kind could be applied in Israel, given that parents of young children work steadily and persistently, allowing income tax to be imposed in later life. Given that 93 percent of employees become parents at some stage of their lives, smoothing could reasonably be dealt with through the general tax system, thus avoiding the need for a differential policy at the individual level.

Our study shows that many OECD countries apply a policy of this kind and that for all 14 family types that we examined (by earnings of the main and secondary breadwinners), which incorporate most of the population, they provide a higher level of assistance—in some cases a substantially higher level—than Israel does.

To examine whether a policy of this kind would significantly benefit families with children, we simulated the application of a balanced support policy where the maximum benefit is four percent of the income for each child, similar to the most common difference in size of the benefit between Israel and the other OECD countries. The simulation shows that under conservative assumptions, a policy of this kind could bridge the gap for at least half of the benefit that would be achieved by full consumption smoothing.

### Appendix 1

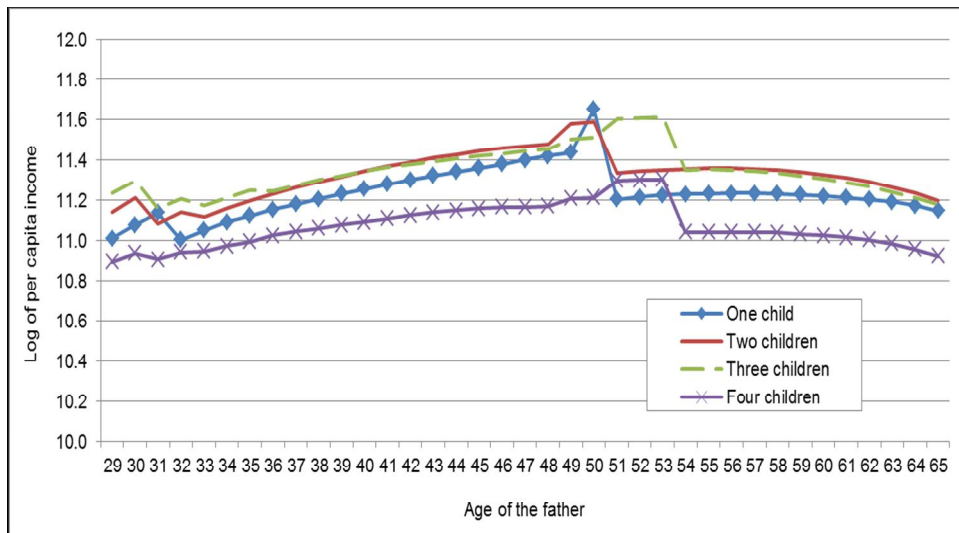
In this appendix we estimate the simulation assuming that the government gives the benefit to families with young children and finances the benefit by taxing those families later in life. In this case, the government accrues debt in the initial years, which it must pay in the future when it collects the taxes. Due to the time lag, a higher rate of tax is necessary which takes into account the interest on the debt. We assume that the relevant interest rate in this case is 5 percent.<sup>26</sup>

In our opinion, such a plan is less reasonable due to implementation issues: the government debt must be increased over a long period, which might aggravate the problem of inconsistency over time, and if higher tax rates have to be imposed, it may also affect the incentive to work, reinforcing the possibility of avoiding tax increases in future. We will present the first option only, in which a tax benefit of 2.5 percent of the income is given for each child, which in this case requires taxes of 18.5 percent (compared to 8 percent if the budget is balanced immediately).

Here are the results:

**Figure A.1**

**Log of per capita income with a tax benefit of 2.5 percent per child and capitalization of government cash flow at 5 percent interest**



<sup>26</sup> Another reason for applying a higher tax rate is the macroeconomic risk. Assuming individual earnings correlate with the aggregate output, then the tax benefits are less exposed to macroeconomic risks as they are closer to the starting point. In contrast, the tax income is received much later on and involves much greater uncertainty. Geneakoplos and Zeldes (2011) show that, in such cases, the government must use a higher capitalization rate, which in turn means imposing a higher tax rate.

**Table A.1**  
**Impact of government policy (percent)**

	Uncapitalized	3% capitalization	5% capitalization
logarithmic	-1	0	0
CRRA=2	73	77	77
CRRA=5	24	34	38

Due to the imposition of the high tax (to address the problem of the debt and macroeconomic risk), it emerges that in the option involving a logarithmic benefit function, government intervention reduces the benefit for the individual. When the benefit function is a CRRA function, the benefit level improves, although not as much as in the case of a balanced policy. Table A.1 shows the outcome if consumption smoothing is applied.

Table A.2 shows that although in some cases most of the benefit gap can be bridged relative to the optimum (in the case of a CRRA benefit function), the percentage benefit is lower than in the balanced budget scenario. This gap reflects the fact that in a balanced budget scenario, part of the tax burden falls on the older generation which will pay the tax but not take advantage of the benefit. Given that this generation received broader government assistance in the past for mortgages, child allowances and pension arrangements than the present generation, this is another reason to prefer the scenario with the balanced budget, as presented in the main body of the paper.

**Table A.2**  
**Benefit gap as a percentage of the optimum**

	Uncapitalized	3% capitalization	5% capitalization
Logarithmic	-155	-1	20
CRRA=2	81	83	83
CRRA=5	34	56	58

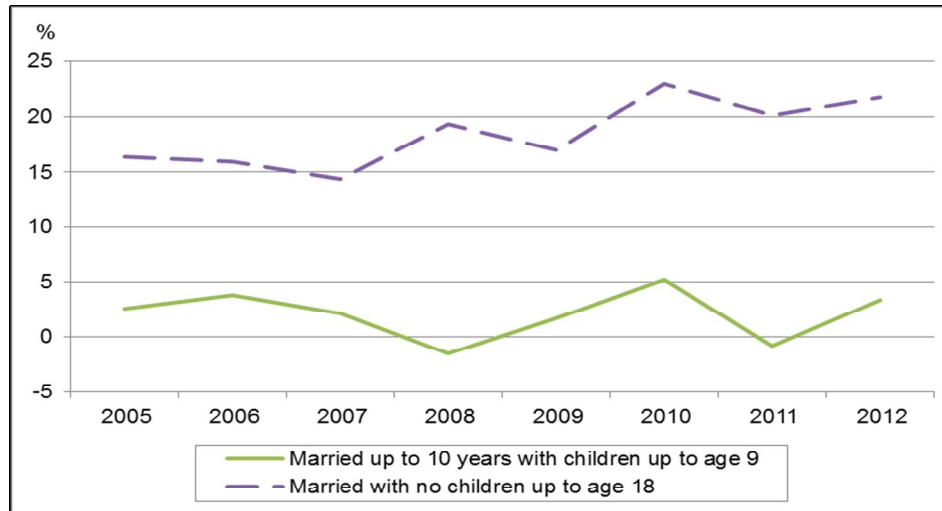
**Table A.3**

**The impact of government policy on the amount of benefits over lifetime by number of children (percent)** (Table 9 is a weighted average of this table)

capitalization	One child			Two children			Three children			Four children		
	No	3%	5%	No	3%	5%	No	3%	5%	No	3%	5%
<b>Simulation of 2.5%</b>												
logarithmic	-0.4	-0.1	0	0	0.3	0.4	0.5	0.8	0.9	0.8	1.2	1.4
CRRA=2	-2.1	0.3	1.4	2.5	5.2	6.4	7.8	10.1	11	11.8	14.8	16
CRRA=5	8.5	12	13.2	27.9	30.3	30.9	42.1	43.4	43.4	53.9	55.5	55.7
<b>Simulation of 4%</b>												
logarithmic	-0.6	-0.2	0	-0.1	0.3	0.6	0.6	1.1	1.3	1.1	1.7	2.1
CRRA=2	-4.7	-0.5	1.5	2.1	6.7	8.8	9.8	13.7	15.3	15.1	19.9	21.9
CRRA=5	6.4	14.3	17.2	32.8	38.5	40.2	49.4	53.3	54.2	62.1	66.2	67.3
<b>Differential tax by age of child</b>												
logarithmic	0.1	0.2	0.3	0.2	0.5	0.7	0.3	0.8	1	0.4	1	1.4
CRRA=2	2.4	3.6	4.2	5.3	7.9	9.1	7.1	10.7	12.4	7.8	13.2	16
CRRA=5	19	20.3	20.6	36.9	39.2	39.8	44.5	48.3	49.6	46.2	53.9	57.2
<b>Differential tax by age of father</b>												
logarithmic	0.1	0.5	0.7	0.3	0.7	0.9	0.3	0.8	1	0.4	0.9	1.1
CRRA=2	3.9	7.4	9	6.2	9.7	11.3	7.1	10.7	12.4	7.9	11.5	13.2
CRRA=5	29.7	34.2	35.5	40.7	43.8	44.5	44.5	48.3	49.6	46.3	49.3	50.1

## Appendix 2

**Rate of monetary savings\* of households with children up to age 9 and with no children up to age 18, 2005–2012**



\*Net monetary savings minus expenses and transfers from other households, as a share of income in 2010 prices.

SOURCE: Based on Central Bureau of Statistics Household Expenditure Survey data.

**Appendix 3****Regressions\* on the likelihood that a household is renting a dwelling**

	<b>1- 2004</b>	<b>2- 2012</b>	<b>3- 2004</b>	<b>4- 2012</b>
Number of children aged 0–3	***-0.21	0	***-0.23	0.01
Number of children aged 4–9	**-.0.11	***-0.13	**-.0.12	***-0.12
Number of children aged 10–13	***-0.18	-0.07	***-0.19	-0.07
Number of children aged 14–17	-0.1	***-0.12	-0.1	***-0.12
Married couple	***-0.43	***-0.16	***-0.43	***-0.16
<b>Couple married up to 10 years with children</b>	<b>-0.11</b>	<b>***0.23</b>	<b>*-0.58</b>	<b>**0.48</b>
Income (NIS thousand)	***-0.02	***-0.01	***-0.02	***-0.01
Arab household	0	***-0.34	-0.04	***-0.32
Arab - married up to 10 years with children	-0.22	-0.49	-0.01	-0.68
Ultra-Orthodox - married up to 10 years with children	0.15	**-.0.28	0.08	**-.0.48
Town with socioeconomic rating of 2	-0.11	0.06	-0.13	0.01
Town with socioeconomic rating of 3	-0.09	***0.31	-0.29	***0.34
Town with socioeconomic rating of 4	*0.16	***0.42	0.07	***0.45
Town with socioeconomic rating of 5	**0.4	0.25	**0.37	0.27
Jerusalem district	***0.33	0.11	**0.31	0.14
Northern district	***-0.6	***-0.7	***-0.7	***-0.69
Haifa district	**-.0.21	***-0.43	**-.0.2	***-0.38
Central district	***-0.34	***-0.38	***-0.33	***-0.33
Southern district	**-.0.31	***-0.29	-0.25	***-0.25
Judea and Samaria	**-.0.55	**-.0.13	**-.0.66	**-.0.18
Head of household aged 25–34	***1.06	***0.81	***1.07	***0.82
Head of household aged 35–44	***0.73	***0.5	***0.74	***0.49
Head of household aged 45–54	***0.34	***0.16	***0.34	***0.15
Married up to 10 years with a child - Jerusalem			0.18	-0.1
Married up to 10 years with a child - North			0.38	-0.13
Married up to 10 years with a child - Haifa			0.03	-0.29
Married up to 10 years with a child - Center			-0.06	-0.27
Married up to 10 years with a child - South			-0.3	-0.19
Married up to 10 years with a child - Judea and Samaria			0.46	0.08
Married up to 10 years with a child, socioeconomic rating of 2			0.11	0.19
Married up to 10 years with a child, socioeconomic rating of 3			**0.87	-0.2
Married up to 10 years with a child, socioeconomic rating of 4			0.4	-0.16
Married up to 10 years with a child, socioeconomic rating of 5			-0.18	0

\* Equations estimated with the Probit method. The numbers presented are the marginal impact of each variable (and not the estimated coefficient).

\*\*\* Indicates significance of 0.01, \*\* indicates significance of 0.05, \* indicates significance of 0.1

**SOURCE:** Based on Central Bureau of Statistics Household Expenditure Survey data.

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