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Abstract

This study considers the income-expenditure gap as an indicator of a household's likelihood of becoming mired in financial distress. The findings suggest that type of housing expenditure is a major factor in the size of the income-expenditure gap for unmarried households, while for married households, socioeconomic status (income quintile) is a crucial determinant. An analysis of the debt burden borne by Israeli households (based on data from the Paamonim organization) shows no significant differences in the average size of total debt between households of different income levels. However, differences were found in household creditors: the primary credit source of financially strong households is banks, while weaker households manage to reduce the disparity vis-à-vis their more affluent counterparts through personal credit from family or friends. It was also found that, since 2007, there has been a rapid growth in total household credit. However, when we look at the credit-to-GDP ratio, Israel fares well relative to other countries.

Introduction

Since the social protests of 2011, the cost of living has occupied a prominent place in Israeli public discourse. Most discussions of the topic center on the rising prices of consumer goods and the higher spending levels associated with them, while the discussion of changes in household income are usually separate from the issue of expenditure. (These two things should, however, be discussed together, as the rising cost of living experienced by households

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is, in fact, the sense that income growth is not keeping up with price increases, potentially leading to family budget deficits.) The size of the negative gap between household income and expenditure reflects the depth of a family's financial distress, or the degree to which a family's finances are endangered.

The present study will analyze the factors and characteristics that affect households' current financial status, with particular attention to the relationship between the income-expenditure balance, household socioeconomic attributes, and the distribution of spending between consumption categories. The goal is to identify the factors that correlate most closely with a negative gap between income and spending (a situation that will be referred to hereinafter as "current negative gap") — factors that can endanger household solvency.

It is important to understand the difference between two terms that feature prominently in this study: household debt and the income-expenditure gap. Debt is a situation in which a household's total assets are smaller than its liabilities. Data are lacking on household assets and loan burdens; based on the information that exists, we cannot determine whether households are actually in debt. Even a household whose current income is lower than its current expenditures may not necessarily be in debt in terms of net worth, as there are several ways of dealing with a current gap: it can be financed through savings, or via loans that households can take out against future income — about which, again, information is unavailable. However, current negative gap increases the chance that a household will eventually become mired in economic distress. For this reason the present study will, as noted, focus on analyzing trends relating to current negative gap, as an estimate of the likelihood of sinking into debt.[1]

Data and methodology

This work uses two data sources: the Central Bureau of Statistics' *Household Expenditure Survey*, and information gathered by Paamonim, a nonprofit that "strives to help Israeli families conduct their economic lives with balance and responsibility." The organization offers guidance and financial advice to

1 Assessing the risk of negative gap leading to debt can be likened to estimating the amount of time that divers can remain underwater. Without information about the amount of air that they can keep in their lungs, it is impossible to know how long they can stay under without drowning. However, the deeper underwater they are, the higher the risk. Similarly, we cannot know how long a household can remain in a situation where expenditures exceed income without knowing what asset reserves or other resources are available to them – but we can say that the greater the disparity, the higher the risk of major economic distress.

all applicants; it also promotes knowledge, relevant tools, and good financial habits. Paamonim's 2,000-plus volunteer staff work with families and individuals to arrive at economic management solutions tailored to their needs and abilities. Assistance is provided through the dissemination of data and tools for independent use, through an Online questionnaire, one-time face-to-face consultations, or personal/group economic guidance over the course of several months.

The Paamonim database contains information on households that availed themselves of the organization's various assistance programs. Like the CBS *Household Expenditure Survey*, the Paamonim database offers information on household income from different sources, and on financial expenditures (as well as demographic household data). This makes it possible to compute the current gap between income and expenditure.[2] The Paamonim database also includes information on the debt burden borne by its client households: debt size, debt ownership (i.e., to whom the household owes money), and number of remaining payments.

The Central Bureau of Statistics data will be used for general analysis of households, while the Paamonim data will facilitate comparative analysis of households with current negative gaps — i.e., households at risk for financial distress — and households that have sought assistance from the organization.[3] If current negative gap can be considered an early stage of debt creation, then applying to Paamonim and participation in its workshops and guidance frameworks can be seen as indicators of a more severe and perhaps chronic state of economic hardship.

The present study begins by looking at the current negative gap for all households according to the *Household Expenditure Surveys*. In light of the past decade's increased housing costs, households are classified by their type of monetary housing expenditure. The second section of the study will explore the relationship between various household socioeconomic characteristics and current gap size for the Jewish population, by means of multivariate analysis. The third section will examine the relationship between current gap and the relative distribution of household expenditure categories.

2 Household income is defined as the sum of the incomes of the individuals belonging to the household and of the assets owned by it. For income distribution by age of head of household, see Appendix Figure 2.

3 As noted in a conversation with Paamonim sources, the main criterion for admission to the organization's assistance programs is the client's motivation to improve their financial management practices. Thus, at the very least, Paamonim client households can be assumed to have higher awareness of unbalanced financial management.

These sections relating to the general population will be followed by a look at the characteristics of households that have sought and received assistance from Paamonim. Data on these households will be compared to data on negative-current-gap households within the population as a whole. The main goal of this comparison is to determine whether Paamonim client households have unique characteristics not shared by other households with a current negative gap. The two final sections will offer an analysis of the debt data found in the Paamonim database, and then an analysis of aggregate Israeli credit data.

Theoretical background

Milton Friedman's canonical 1957 study provides a theoretical framework for the decision-making processes behind consumption levels in different periods of people's lives, given their expectations about future income. This theory postulates that in each period individuals have to decide what portion of their income to consume, and what portion to save. The gap between current income and consumption spending is the result of a dynamic optimization process, in accordance with personal preferences and expectations regarding the future. Nearly everyone saves or borrows money at different points in their lives.

In another important study, Modigliani and Brumberg (1954) argue that changing savings rates over the course of a lifetime are not dependent on changes in individual income but rather on changes in the present cumulative value of the individual's assets. In other words, individuals want to build up assets to a certain level for their retirement — in accordance with their expectations of future income — and they save in order to reach the desired level. A decrease or increase in current income leads people to assume that their future income will change accordingly, and that they should alter/decrease their asset accumulation rate so as to reach the planned asset level, in accordance with their age and time left until retirement. For example, one explanation given by the authors for negative gaps between household income and expenditure is the purchase of durable goods (e.g., refrigerators, air conditioners, furniture, apartments). Purchases of this kind usually involve relatively large one-time financial expenditures. These goods serve households for lengthy periods (known as "flow of services"), and the value of these services is added to the household's "net value."[4]

4 "Net value" is calculated as the capitalized value of all owned assets, including the flow of services from ownership of durable goods, minus the capitalized value of the household's liabilities. If a household takes out a loan in order to buy a refrigerator and does not finance the purchase out of its current income, its total liabilities increased by the value of the loan, and its total income grew by the financial value of the flow of services from the refrigerator. Thus, the household's "net" value would not have changed. Calculation of an "adequate consumption basket" (Gottlieb and Fruman, 2012; Regev, 2014) constitutes another example of the use of flow of services as an economic asset, or what is known as "income in kind."

In later years, Modigliani took the "lifecycle income" hypothesis, which is a pure microeconomic theory, and developed it into macro applications (Modigliani and Ando, 1963). This development, argue the authors, better reflects occurrences in the economy as a whole than does Friedman's theory, which is less suited to aggregate data.

Both theories address the behavior of a specific individual over the course of his/her lifetime, while the present study is based on cross-sectional data that reflect a single year only. Thus, some of the conclusions to follow may be influenced by data limitations regarding income and expenditure data over the course of the research subjects' lifetimes, and regarding the value of their assets and liabilities.[5]

Besides the objective indicator of household financial status (net value of owned assets), there is also a subjective measure, based on self-reporting. A recent study on this topic (Kasir and Romanov, 2017) analyzes responses to a question about household financial stability in a consumer confidence survey for 2016. The percentage of those who responded "in overdraft," i.e., obliged to finance the income-expenditure gap using savings, or that they are "in debt" was 40.8 percent for Arab Israelis, 29.9 percent for Haredim (ultra-Orthodox), and 23.9 percent for non-Haredi Jews. Given that the Haredi and Arab Israeli poverty rates are higher than the percentage of those who report being in overdraft, we may conclude that disadvantaged households are likely to maintain a state of economic balance, despite their low income levels. Accordingly, a higher percentage of non-Haredi Jews reporting overdraft status may indicate that there are households of relatively high income that do not manage their finances in a balanced fashion. This is an example of the differences that exist between the objective indicators such as current income (from which poverty rates are calculated) and the subjective indicator defined in Kasir and Romanov's work (self-reported financial difficulty).

1. The income-expenditure gap – all households

This section will analyze the gap between households' disposable income and expenditures, with the aim of identifying the household characteristics that correlate with current negative gap size. The data were taken from the Central Bureau of Statistics' *Household Expenditure Survey 2015* (the most

5 At present, no panel data of households' detailed expenditures are available, that include information on current household income and asset information alongside expenditures. Such data would make it possible to determine how those households change their behavior over time, in accordance with changes in their income, assets, and other variables.

recent data that were available at the time of writing). In order to create a database that represents those of prime working age, the analysis focuses on households whose heads (those with the highest income in the household, also referred to as "economic heads of household") are in the 25-60-year-old age range.[6] Also, in order to produce a reliable database appropriate for comparison to data obtained from Paamonim, the study focuses only on the Jewish population.[7]

In 2015, the share of households with a current negative gap was 39 percent for unmarried households and 35 percent for married households.

Relationship between current gap and housing expenditures

Given the great upsurge in Israeli real estate prices over the past decade and the major share of housing expenditure within the household consumption basket, households were divided into categories reflecting their real estate status. Real estate status, determined by type of monetary expenditure on housing, encompasses several categories:

- Households with no monetary expenditures on housing: the majority of households in this group live in owner-occupied properties, and thus have no housing expenses. The rest of the households in this group do not own apartments, but their housing expenditures are funded by others (e.g., relatives, employers, or public institutions)
- Mortgage-paying households
- Rent-paying households
- Households that pay both mortgage and rent

Categorization by type of housing expenditure makes it possible to determine whether current gap differences exist between households belonging to different housing expenditure groups. In general, mortgage payments are not regarded only as a consumer expenditure but also as an

6 The age restriction refers to the economic head of household, regardless of the ages of other household members.

7 Paamonim data do not include data on households in Arab Israeli localities. The corresponding category in the Central Bureau of Statistics database is "Jews and others" (by religion of head of household).

investment, but for the present study's purposes they will be considered a current expenditure, in order to estimate the correlation between housing expenditure and the chance of falling into debt.[8]

Household income varies over the lifecycle and so, accordingly, does household housing status. Figure 1 shows the household expenditure group distribution by age in 2015.[9] In general, the share of households without financial expenditures on housing rises along with head-of-household age. This trend accords with the positive relationship between age and income (Appendix Figure 2). Additionally, the older people are, the greater the likelihood that they have paid off the mortgages that they took out while young. Exceptions in this group are households headed by individuals ages 25-29, a relatively high percentage of which do not have housing expenditures. This finding is correlated with several characteristics of this age group: a large proportion of high socioeconomic-status households (40 percent belong to the 4th and 5th quintiles), relative to households headed by people ages 30-44;[10] a high percentage of households living in the periphery, where real estate prices are lower; and a high prevalence of households that receive direct assistance from relatives for their housing expenses. Another possible factor behind the relatively high share of households headed by 25-29-year-olds without housing expenditures, might be the practice of registering assets in the name of young couples, although the young couples do not actually purchase the properties themselves. However, this appears to be a highly unlikely scenario.

The share of rent-paying households drops as head-of-household age rises. The share of mortgage payers grows up to age 49, then declines, presumably because the mortgages taken out at younger ages are by then paid off. Compared to earlier years, the share of mortgage payers is lower in the younger age groups and higher in the older age groups (Appendix Figure 3). This finding may indicate that people are taking out mortgages at later ages than they were in 2003, and that payoff periods are getting longer. Both

8 The expenditures were also assessed without including mortgage payments in the current gap calculation, but the analysis results do not differ significantly. For more on this, see the Econometric Appendix.

9 It should be recalled that these are cross-sectional data representing households that made decisions about their housing status at different periods, when market conditions were different. Thus, Figure 3 does not necessarily reflect sweeping preferences for specific types of housing. For the distribution of households by housing expenditure in specific years (2003, 2008, and 2015), see Appendix Figure 3.

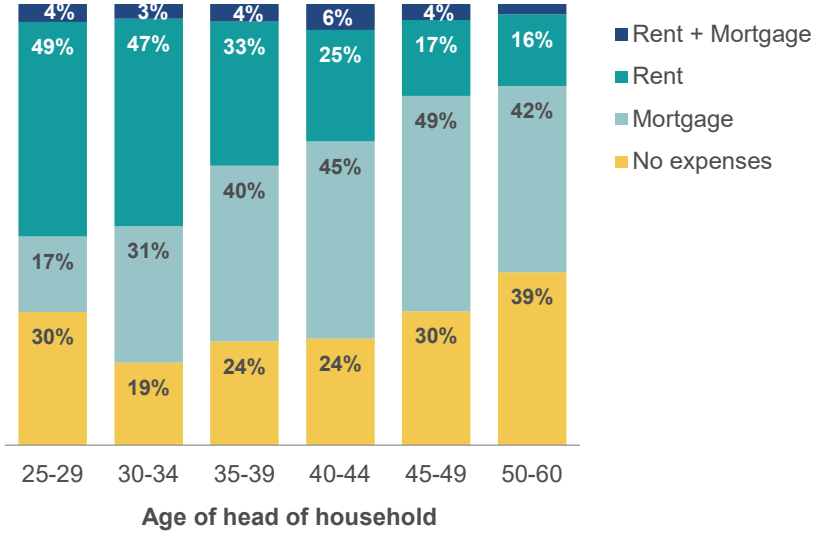
10 Higher socioeconomic status correlates with large numbers of assets, which in turn make it possible to buy a home without credit.

factors are correlated with housing price increases — the greater required equity necessitates lengthier savings periods, and the larger mortgages entail longer repayment periods.

Of all households, 3.6 percent pay both mortgage and rent; this group's share peaks at 6 percent within the 40-44 age range. This small group may include households that have bought apartments but are waiting to take possession of them, real estate investors,[11] and parents helping their children with rent. As will be seen later, this group, as expected, has especially high housing expenditures that place a burden on current household budgets.

Figure 1. Distribution of households by household expenditure category, 2015

By age of head of household



Source: Kyrill Shraberman, Taub Center | Data: CBS, *Household Expenditure Survey*

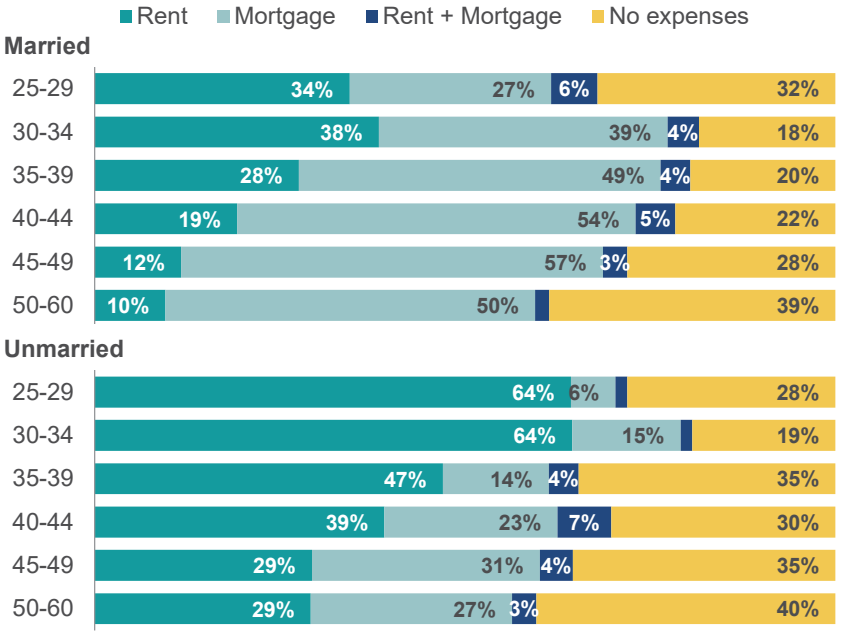
11 This refers to mortgage payments on a property that is rented out, while the mortgage owners also rent their personal dwelling. The risk of investing in a rental apartment, while renting other property is that the investor will not succeed in finding a tenant, and will be forced to cover the mortgage costs themselves, making overall monetary expenditure on housing assets quite substantial.

Another variable that may correlate with economic status in general, and with housing expenditure type in particular, is family status. The most substantial difference is between married households and unmarried households — a group that includes single, divorced, and widowed individuals. These three subgroups were combined into a single category, although each of them represents individuals at different stages of life who may have different motivations and circumstances. Firstly, the observed number of divorced people, and certainly of widows/widowers, is small relative to the observed number of single people. Secondly, the differences between those living without partners, even if their family statuses differ, are small relative to the differences between unmarried and married households. For example, most divorced men live without their children, as do most widowers — while most married households have children.

Figure 2 shows, unsurprisingly, that many more married households have mortgage expenditures. Also, the share of unmarried households with housing expenditures of any sort is much higher than the share of married households — due to divorced people who, presumably, are forced to leave owner-occupied dwellings, and to single people, many of whom are renters. Very few households pay both mortgage and rent — 4.2 percent of married households, on average, and 3.7 percent of unmarried households. The share of these households is relatively high among married people ages 25-29, supporting the idea that such double expenditure reflects the need to rent a dwelling while waiting for a purchased property to be ready.

Figure 2. Distribution of households by housing expenditure category, 2015

By age of head of households and family status

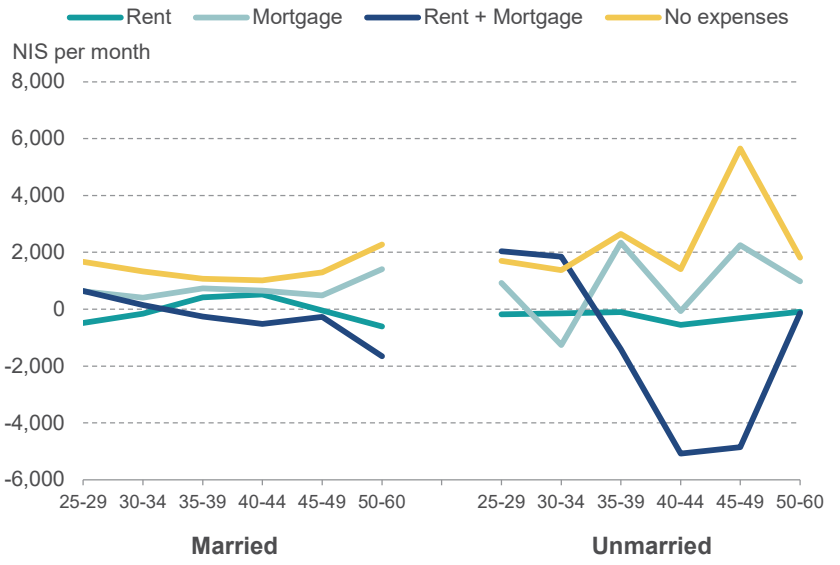


Source: Kyrill Shraberman, Taub Center | Data: Bank of Israel

As seen in Figure 3, which shows the current gap (income minus expenditures) by housing expenditure and age group, current gap size correlates more strongly with housing expenditure status than with age of head of household. In 2015, the current gap of households with no financial expenditures on housing was positive (i.e., income exceeded expenditures), and was the largest among all housing expenditure situations, across all age groups. The current gap of rent-paying households was fairly balanced, hovering around 0 in all age groups, especially for the unmarried. The budget gap of mortgage-paying households was generally positive and quite stable in all age cross-sections, and higher than the average current gap of households with rental expenditure.

When we analyze the current gap of households paying both rent and mortgage, we find that those headed by people ages 35 and over have negative gaps between income and current expenditures. The longer the period that households continue to have a current negative gap, the greater the risk of sinking into debt. By contrast, younger households of the same housing-expenditure status have positive current gaps. This can be explained by the fact that, at these stages of life, only economically strong households can afford both rent and mortgage payments over the long term.

Figure 3. The current monthly gap per person, 2015
By housing expenditure category and age of head of household



Source: Kyrill Shraberman, Taub Center | Data: CBS, *Household Expenditure Survey*

A comparison of unmarried and married households shows that variation in current gap size by type of housing payment is larger among unmarried than among married households. Also, the current gap of unmarried households varies more widely than for married households along the age range.

Interestingly, married rent-paying households headed by individuals younger than 35 or older than 45 show current negative gaps, on average, while households headed by people in the 35-44 age group exhibit positive gaps. By contrast, unmarried households have small negative gaps in all age groups.

A comparison of mortgage-payers suggests greater variation in average current gap among unmarried households. Married households show positive current gaps ranging from NIS 408 for those headed by 30-34-year-olds, to NIS 1,407 for households headed by people ages 50-60. A comparison of households paying both mortgage and rent shows a decline with age in the average per capita current gap size, for both married and unmarried households, although the gap for unmarried households is much smaller. Only in the 50-60 age group is the gap for the unmarried higher than among the married households in the same age group. However, since the 50-60 age group has a small number of observations, this likely affects the statistical significance of the estimates.

The relationship between current gap and household characteristics: a multivariate analysis

This section will analyze the relationship between current gap size and household social, economic, and demographic attributes: place of residence, socioeconomic status, head-of-household employment status, date of immigration to Israel, and type of housing expenditure (as defined in the preceding section).[12] As in the previous section, expenditures will be shown separately for married and unmarried households. In order to neutralize the relationship between household size and current gap, the estimation will be based on current gap per capita. The estimation method selected is a Tobit regression, which allows us to examine current positive alongside negative gaps.[13]

As explained above, a current negative gap is created when a household deviates from its monthly budget, i.e., when total disposable income is less than total monetary expenditures on consumption (including mortgage payments). As noted, this situation may put households at risk of economic distress and debt.

In order to show, in a relatively simple manner, the relationship between household characteristics and the chance of developing a current negative gap, a reference group was created to provide a basis for comparison. The reference group household attributes are as follows:

12 For a detailed presentation of the process and its results, see the Econometric Appendix.

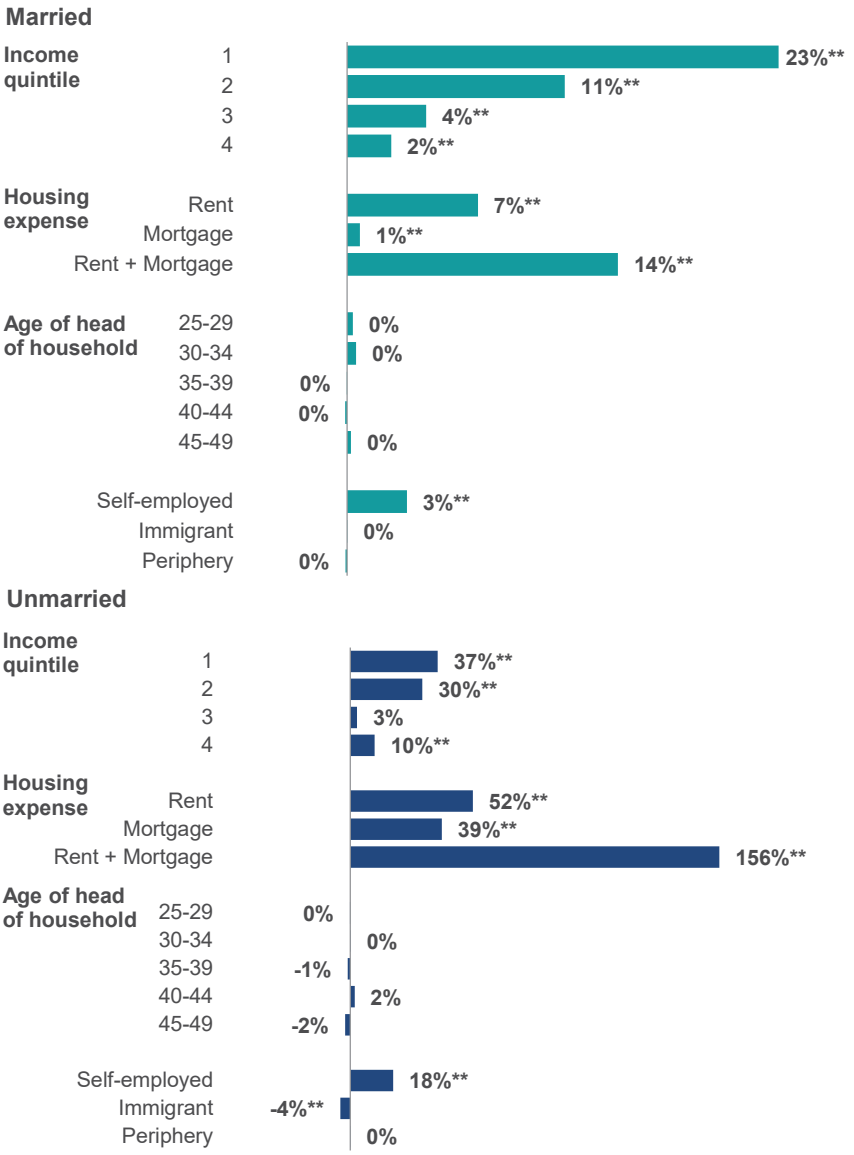
13 For more on the estimation of limited dependent variables, see Wooldridge (2015), Chapter 17.2.

- Head of household is a salaried employee
- Head of household is in the 50-60 age group
- Head of household is Israel-born or a long-time resident (immigrated to Israel before 1990)
- Household resides in central Israel
- No financial expenditures on housing
- Household belongs to the highest income quintile (5)

The percentages appearing in the columns of Figure 4 represent the size of the current negative gap correlated with the specific attribute relative to the average gap of the reference group. For example, we can see that among unmarried households, the deficit of a household headed by a self-employed person was 18 percent larger, on average, than that of a household headed by a salaried employee, assuming that all the other data are identical to those of the reference group. This result may be ascribed to the fact that self-employed people, unlike salaried employees, are more sensitive to economic cycles. This sensitivity makes it more likely for self-employed people to have incomes that, at any given point in time, are lower than usual, although their expenditures are unchanged.

Among unmarried households, the strongest correlations of per capita current negative gap are with type of housing expenditure. For rent-paying households, the current negative gap per capita is 52 percent larger than that of households with no financial expenditures on housing. For mortgage-paying households, negative gap is correlated with a 39 percent increase relative to the reference group's current gap, while the situation of paying both rent and mortgage correlates with a 156 percent increase relative to the reference group gap. As noted, the share of households making both mortgage and rent payments is relatively small, and the exceptional outcome may be due to the small number of observations.

Figure 4. The correlation between the current negative gap per person and household characteristics, 2015



Note: The growth in the gap relative to the reference group. No asterisk = not significant; * p-value = 0.05-0.10; ** p-value < 0.05.

Source: Kyrill Shraberman, Taub Center | Data: CBS, *Household Expenditure Survey*

The differences are much smaller for married households. The current negative gap of rent-paying households is 7 percent larger than that of the reference group, the gap of mortgage-paying households is 1 percent larger, and the gap of households paying both rent and mortgage is 23 percent larger than that of the reference group.

Household place of residence and head-of-household age are not correlated with size of negative gap, for either married or unmarried households. By contrast, household socioeconomic status, as reflected in the per capita income quintile to which a given household belongs, is significantly correlated with current negative gap. The lower the household's socioeconomic status, the larger the per capita current negative gap. Among households in the lowest quintile (Quintile 1), the average current negative gap of unmarried households is 37 percent larger than the gap of households in the reference group (Quintile 5); the corresponding figure for married households is 23 percent. The per capita current gap of households in Quintile 4 is 10 percent larger for unmarried households, and just 2 percent larger for married households, than that of the reference group.

The current negative gap of unmarried households that immigrated to Israel after 1990 is 4 percent smaller than that of the reference group.

In general, the correlations between socioeconomic characteristics and size of current gap are higher among unmarried households than among married ones. The smaller number of potential wage earners in unmarried households' may explain, if only partially, this group's greater current gap volatility.

The relationship between current negative gap and consumption patterns

As the previous sections show, there is a correlation between household socioeconomic status and current negative gap in expenditures. It is interesting to consider whether consumption patterns, i.e., household consumption preferences, correlate with current gap size. In particular, it is worth examining the correlation between gap size and the share of household expenditures devoted to housing, which was found in the preceding section to correlate relatively strongly with the existence of a current negative gap. The marginal correlations will be expressed in the form of quasi-elasticities — i.e., what is the percent change in negative gap when the share of a particular expenditure item is altered by 1 percent? The regressions will be estimated separately for married and unmarried households with regard to this item as well.

Personal expenditures (including spending on clothing, footwear, laundry services, hairdressing, and cosmetics), correlate much more strongly with an increase in current negative gap, for both unmarried and married households (Figure 5). A 1 percent rise in the relative share of personal expenditures in total household spending leads to a 4.6 percent increase in the current per capita negative gap among unmarried households, and a 7.2 percent increase among married households. The reason for this close relationship between personal expenditures and larger gap size seems to be that these are large, infrequent and generally unplanned expenditures that increase total household spending once every few months and make it harder to balance the budget — in contrast to fixed and planned expenses such as rent, education, and home maintenance. Also, major price reductions in these expenditure categories over the last few years may have led to increased consumption in this category.

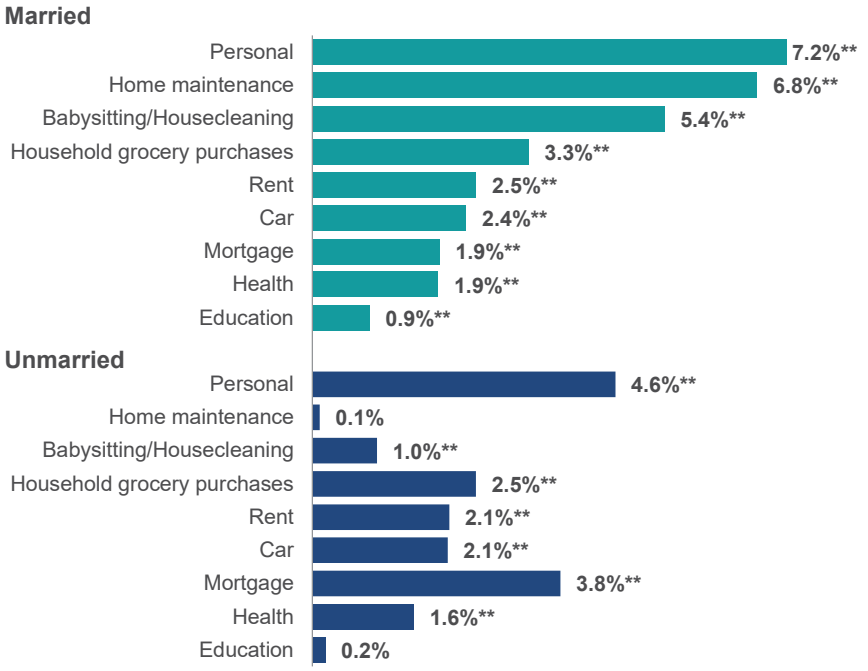
The difference between the groups may stem from differences in the consumption of this form of expenditure. It is highly likely that unmarried households purchase "personal" items only when this does not threaten their current cash flow or, in other words, when it does not greatly increase their deficit. By contrast, married households with budgets based on the income of both partners may be more exposed to exceptional expenditures, due to what is known as the "tragedy of the commons"[14] as well as a possible lack of awareness of each other's personal expenses.

The second-most important factor in terms of the relationship with unmarried households' per capita current negative gap is the share of mortgage payments. A 1 percent rise in the share of mortgage out of total spending is correlated with a 3.8 percent current gap increase. For married households this expenditure item has less impact on gap size: a 1.9 percent gap increase with each 1 percent rise in mortgage expenditure share. The correlation between rent expenditure share and current negative gap is quite similar for married and unmarried households (2.1 percent and 2.5 percent, respectively).

The correlation between the share of household grocery purchases and per capita current negative gap size is the third-largest for unmarried households, amounting to 2.5 percent. For married households the correlation is stronger (a 3.3 percent rise in current gap for every 1 percent increase in this expenditure item). However, household grocery purchases rank only fourth in terms of impact on current gap.

14 In a household context, "tragedy of the commons" refers to a situation where each married partner uses the shared budget to pursue his/her own interests and assigns lower priority, if any, to the needs of other household members. This leads to overuse of the shared resource by both partners. For more on this topic, see Hardin (1968).

Figure 5. The correlation between the current negative gap per person and the portion of the expense category out of the budget, 2015



Note: No asterisk = not significant; * p = 0.05-0.10; ** p < 0.05.

Source: Kyrill Shraberman, Taub Center | Data: CBS, *Household Expenditure Survey*

Spending on other items, such as vehicles and healthcare, is very similarly correlated with current negative gap for both married and unmarried households, ranging from 1.5-2 percent. Interestingly, for married households the correlation between the share of basic home expenses (electricity, water, gas, heating, and *arnona* (city property tax) and per person current negative gap size is the second largest, at 6.8 percent, while for unmarried households this correlation is statistically not significant. Another major difference between these groups has to do with the correlation between the expenditure shares of babysitting/housecleaning and negative gap per person: a 5.4 percent increase in gap for each 1 percent rise in the share of these expenditure items for married households, compared with just a 1

percent increase for unmarried households. These two findings are additional proof of the variation between married and unmarried households' current negative gap per person and differences in factors correlated with it.

2. Households with a current negative gap and households that have sought assistance from Paamonim

The preceding section analyzed income-expenditure gaps based on representative data for all Jewish households in Israel. This section will add to the picture households for which information is available in the Paamonim database, i.e., households from Jewish localities that have sought and are receiving assistance in financial management from the organization. The Paamonim data, like the Central Bureau of Statistics' *Household Expenditure Survey*, relate to monthly income and expenditures; information on household debt is provided as well. Paamonim data will be compared with general data from the CBS surveys; this will be followed by an analysis of the debt data for households that sought assistance from Paamonim.

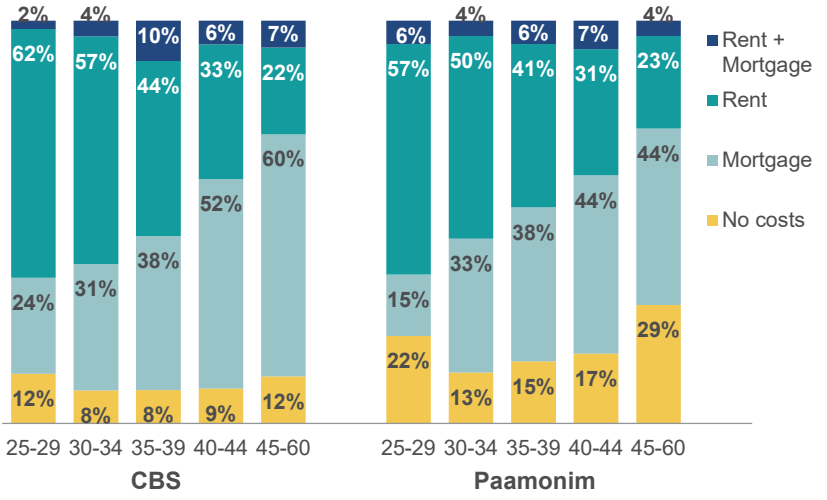
Two major differences should be noted between the data analysis for all households (Part 1) and the present comparison. Firstly, Paamonim's database contains relatively few observations of unmarried households, meaning that the comparison will focus solely on married households. Secondly, the household data included in the Paamonim database will be compared only with the *Household Expenditure Survey* data for households that have a negative income-expenditure gap. This study's working assumption is that only households with current negative gap are at risk of financial distress, and, therefore, closer to the "households in debt" category. It is reasonable to assume that households that have sought assistance from Paamonim in order to improve their financial management practices are at more advanced stages of economic difficulty, and that a comparison between these two groups can reveal more information regarding similarities and differences between them. In this way it may be possible to support or refute the assumption that current negative gap is an indicator of financial distress. Also, it is important to note that the Paamonim database includes households with both positive and current negative gaps.

Figure 6 compares household distribution by housing expenditure for both databases (that is, for married households only). One difference is that the Paamonim database has a much lower percentage of households with no

financial housing expenditures. This finding supports the data presented in Part 1, which shows that households without financial housing expenditures have the smallest average current negative gap and, consequently, the lowest risk of sinking into debt.

Figure 6. Distribution of households by housing expenditure category

By age of head of household



Source: Kyrill Shraberman, Taub Center | Data: CBS, *Household Expenditure Survey 2015*

By contrast, the percentage of households making both mortgage and rent payments in the Paamonim database is slightly higher than in the population as a whole. This also supports earlier findings to the effect that households in this spending category have the largest current negative gap. The two databases have similar percentages of households paying only rent, especially for the older age groups. The Paamonim database's exceptional share of mortgage-paying households among those headed by people ages 45-60 appears to be due to the paucity of households in this category.

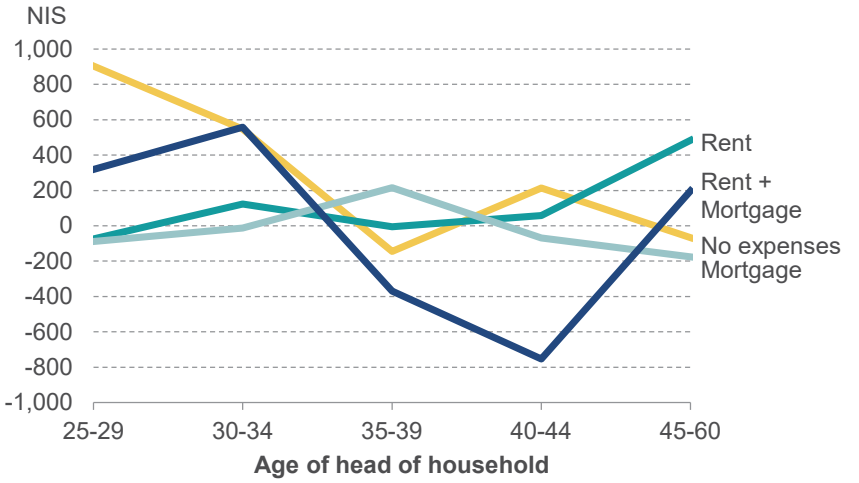
A look at current gap size by type of housing expenditure reveals very small differences between households in the two databases (Figure 7 versus Figure 3). The result may reasonably be assumed to reflect the way in which households are chosen for admission to Paamonim's programs. We should, however, take into account that at least some of the households whose

information is included in the database are still receiving guidance from the organization, and that when the process has been completed the current gap in their budgets will be smaller, or even positive.

It is interesting to note that, in the *Household Expenditure Survey* data, the group of households paying both rent and mortgage displays a smaller negative gap than do households in this category that applied to Paamonim, especially ones headed by people in the 35-49 age group. However, as noted in Part 1, this is a small category whose share amounts to just 6 percent of households in the Paamonim database.

Figure 7. Current monthly gap per person, 2016

Married households, by housing expenditure category and age of head of household



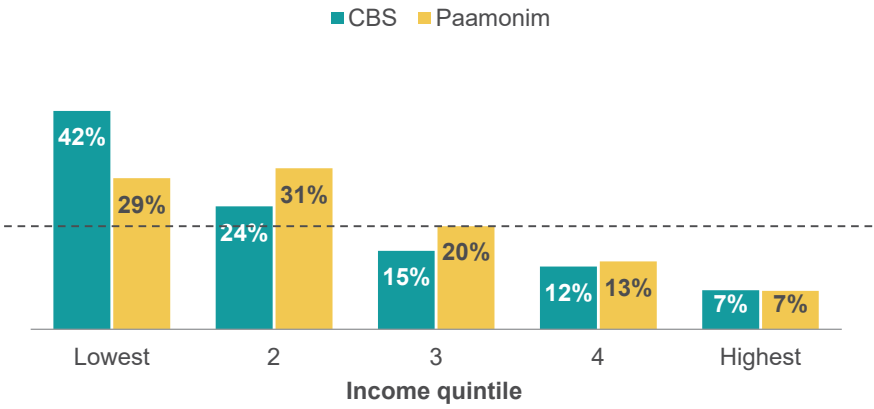
Source: Kyrill Shraberman, Taub Center | Data: Paamonim

Figure 8 shows the household distribution by per capita income quintile in both databases (the quintiles were calculated on the basis of the 2015 *Household Expenditure Survey* income distribution). The two lowest quintiles are overrepresented in both databases (over 20 percent), but the over-representation in the *Household Expenditure Survey* data is more marked — an unsurprising finding given that socioeconomic status is correlated with current negative gap (Figure 4) and, as noted, the Survey data encompass only those with negative gap, while the Paamonim database also includes

those with a positive current gap. Another reason for the lower quintiles' over-representation is that the comparison focuses on households of married individuals. Because the number of persons is larger, the probability of belonging to the lower quintiles is higher. At the same time, the presence of households in the highest quintile that were admitted to Paamonim programs (though underrepresented) indicates that even economically strong households may find themselves in financial straits.

Figure 8. Distribution of households by income quintile, income per person

Married households



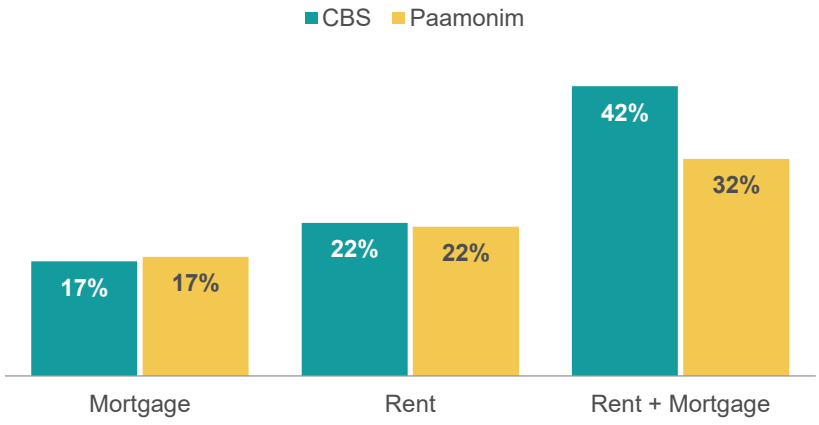
Note: Income per person was calculated on the basis of the *Household Expenditure Survey*.

Source: Kyrill Shraberman, Taub Center | Data: CBS, *Household Expenditure Survey 2015*

The present study find housing expenditures to be the factor most strongly implicated in current negative gap size. It is, therefore, interesting to look at the share of financial expenditure on housing out of the income of households whose spending exceeds their income. The results of such an examination, shown in Figure 9, may explain some of the high correlation between simultaneous mortgage and rent payments and current negative gap size. Households that spend on both of these items allocate a particularly large share of their income to housing, relative to households in other housing expenditure categories.

Inter-database comparison suggests that the share of financial expenditure on housing among households that applied to Paamonim is slightly larger for rent-paying households, and slightly lower for households making mortgage payments only. The explanation for this may lie in the relatively high percentage of rent-paying households in the lowest quintile.[15] As in earlier observations of households paying both mortgage and rent, the relatively large difference between the two databases may be attributed to the low number of observations in this group.

Figure 9. Shae of housing expenditure out of total expenditure
Married households, by housing expenditure category



Source: Kyrill Shraberman, Taub Center | Data: Paamonim (2016); CBS, *Household Expenditure Survey 2015*

The next analysis will compare the characteristics of Paamonim client households with those of households that have a current negative gap. The aim is to estimate the correlation between different attributes and the likelihood of participating in Paamonim programs.

Paamonim program participants represent a cross section of households that are aware of being in economic distress. Beyond that, the Paamonim expert team assessed the economic status of these households and found them to indeed be in need of the organization's assistance. Since the Central

15 Some 49 percent of households in the lowest quintile rent homes, while the figure for the second-lowest quintile is 39 percent (versus 43 percent for the highest quintile) (Appendix Figure 4).

Bureau of Statistics' database lacks asset and liability data, as previously noted, households in the Paamonim database may constitute a sample of households in economic distress at the highest level of certainty, among those households with a negative gap. Thus, the results of the present estimation will indicate whether per capita current negative gap size is indeed an appropriate choice of estimate for the likelihood of falling into financial hardship.

Estimating the relationship between household characteristics and the chance of being included in the Paamonim database was carried out via a Logit probability model. The sample contained households to Paamonim and households from the Household Expenditure Survey that have current negative gap. All of the households in the sample include married individuals, and are headed by Jews in the 25-60 age range. In order to avoid bias due to an unrepresentative sampling of Paamonim data, the relationship was estimated with the help of weights that correct for sampling bias (Manski and Lerman, 1977).[16]

Figure 10 displays the marginal correlations between different household characteristics and the probability of participating in Paamonim programs. As in Figure 4, the percentages displayed are the change in the likelihood of needing Paamonim's assistance relative to the chance of households in the reference group: households in the highest quintile (by per capita net income), headed by people ages 50-60, that have no financial expenditures on housing.

All housing expenditure types increase the probability of a household being admitted to a Paamonim program. A household making mortgage payments boosts its likelihood of receiving Paamonim guidance by 21 percent, while the corresponding figure for a rent-paying household is 31 percent (relative to households in the reference group). This finding supports the results of the previous estimation, which suggested that the negative gap predicted for households paying rent is larger than the gap of households making mortgage payments. If a household pays both mortgage and rent, its likelihood of participation in Paamonim programs is 23 percent higher than that of reference-group households. This correlation, as expected, is higher than that of households making only mortgage payments, but is lower than that of households paying rent. It is reasonable to attribute this to differences

16 The weights were created by calculating the relative shares of different households (by head-of-household age group and date of immigration to Israel) in the population at large. Thus, the share of a specific group in the Paamonim data (an unrepresentative sample) after use of the weights will be equal to the share of that group in the expenditure surveys. The calculation was performed separately for married and unmarried households.

in net worth: rent-paying households have assets of lower value than those of households paying both mortgage and rent.

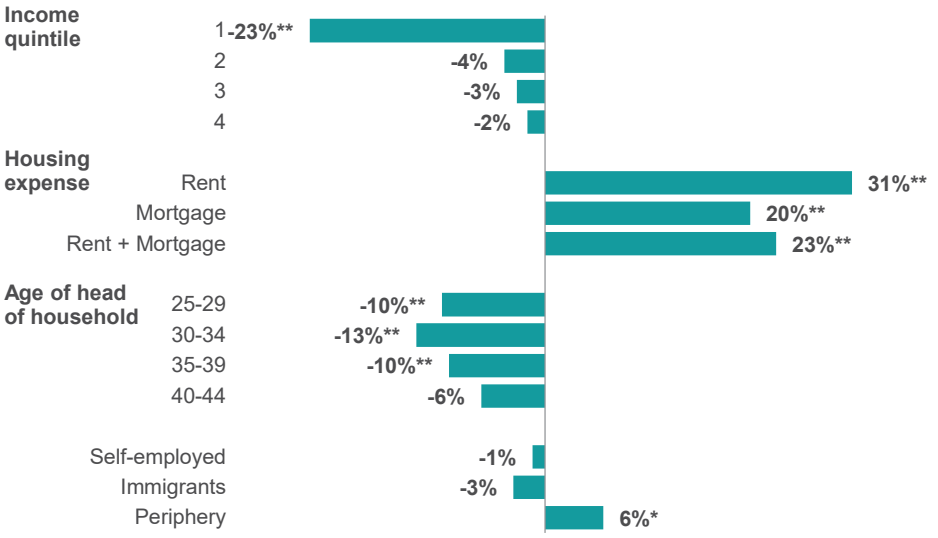
An assessment of the correlation between head-of-household age and the probability of receiving assistance from Paamonim also shows similar findings to those obtained when estimating the size of the current negative gap for all households: a correlation that is not linear. The greatest likelihood of Paamonim involvement is for households headed by individuals ages 30-34; a slightly lower probability is obtained for households headed by those in the 25-29 age range. The probability of households headed by 40-44-year-olds is lower than that of households headed by people in the 45-49 age group, and both probabilities are lower than those of younger households. The causative factor here may be that households headed by older people are more aware of the difficulties of financial management, and are more highly motivated to improve in this sphere.

The correlations between probability of being admitted to Paamonim programs and socioeconomic status (as reflected in income quintile) are not significant, except for the lowest quintile, which reduces the likelihood of applying to Paamonim by 22.8 percent compared with households in the highest quintile. The reason for this may be an over-representation of lowest-quintile households among households in the expenditure surveys compared with Paamonim data, due to the focus on households with a current negative gap (Figure 8).

It is interesting to note that if a household resides in the periphery its probability of receiving assistance through one of Paamonim's programs is 5.8 percent higher than that of a household in central Israel (where all other variables are the same). The correlation between residence in the periphery and size of current negative gap is not significant, meaning that this finding represents a preference for periphery-based households in Paamonim admissions.

Figure 10. The correlation between the likelihood of being a Paamonim client and household characteristics

Married households



Note: The growth in the gap relative to the reference group. No asterisk = not significant; * p = 0.05-0.10; ** p < 0.05.

Source: Kyrill Shraberman, Taub Center | Data: Paamonim (2016); CBS, *Household Expenditure Survey 2015*

The probability of being a Paamonim client by consumption patterns

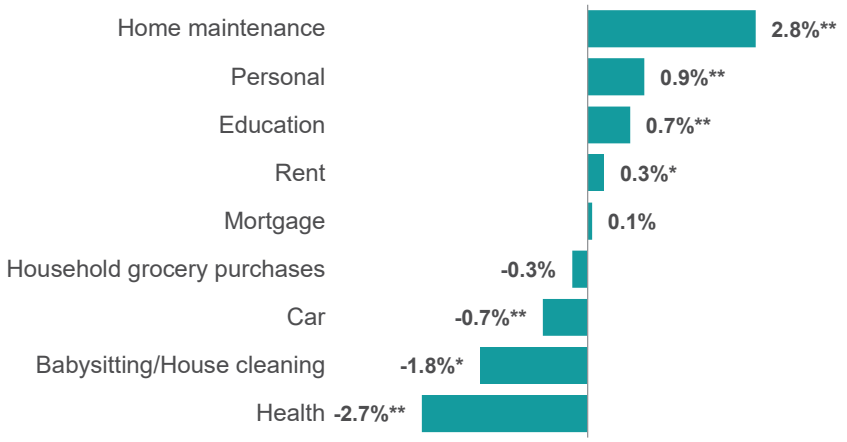
As with the relationship between household expenditure distribution and current negative gap (Figure 5), the present study looked at the relationship between the budget shares of the various expenditure items and the likelihood of receiving assistance from Paamonim (as evidence of the relationship between household expenditure distribution and the chance of falling into economic distress). The analysis calls attention to several findings (Figure 11).

The expenditures that increase the probabilitiy of Paamonim participation are those in the basic home expenses category (electricity, water, gas, heating, municipal taxes, and security assessments). A 1 percent rise in the share of these expenditures out of total household spending is correlated

with a 2.8 percent increase in the probability of being aided by Paamonim. To illustrate, the average share of basic home expenses amounts to 7 percent, while a 5 percent increase in this share will raise the likelihood of receiving assistance from Paamonim by 14 percent. What this finding means is that married households with a high share of home maintenance spending have a higher probability of becoming mired in financial difficulty.

For the other expenditure items positively correlated with the probability of being aided by Paamonim — personal and education spending – the correlation is much smaller; every 1 percent rise in the share of these expenditures out of total spending correlates with a very moderate increase (0.3-0.9 percent) in the likelihood of being a Paamonim client. Especially interesting is the fact that, despite the strong relationship between housing expenditures and current negative gap, the correlation between these expenditures and the probability of admission to Paamonim frameworks — though statistically significant — is very small. If the share of rent in total spending is increased by 1 percent, the probability will increase by just 0.3 percent, while mortgage payments boost the probability by only 0.1 percent. Other types of household spending actually reduce the likelihood of applying and being admitted to Paamonim programs: financial expenditures on vehicles, babysitting and housecleaning, and financial expenditures on health services. A 1 percent increase in expenditure share will lower the probability of applying to Paamonim by 0.7 percent for vehicle expenditures, 1.8 percent for babysitting and housecleaning, and 2.7 percent for health services.

Figure 11. The correlation between the likelihood of being a Paamonim client and household expenditure category
Married households



Note: No asterisk = not significant; * p = 0.05-0.10; ** p < 0.05.
Source: Kyrill Shraberman, Taub Center | Data: Paamonim (2016); CBS, *Household Expenditure Survey 2015*

3. Household debt

In this section of the study we will analyze the debts of households included in the Paamonim database. The analysis will address the distribution of creditors, and size of debt by household attributes.

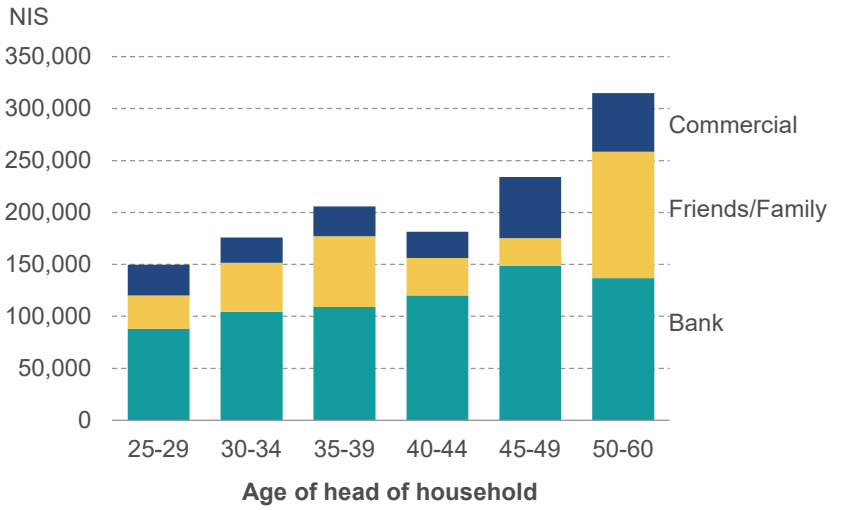
Creditors were divided into three main groups. The first group is the banking system, and credits related to this group are: bank loans, credit card debits, overdrafts, and late mortgage payments (hereinafter: "banks"). The second group consists of debts owed to near or distant relatives or to friends (hereinafter: "family"). The third group is commercial debt, and also includes public and government institutions to which households have debt. This latter group includes debts owed to professionals such as building contractors, plumbers, yoga teachers, and lawyers — in other words, professionals who provided services to the household. Another component of this group is debts owed to educational institutions, i.e. tuition owed to

schools and universities.[17] The distribution among types of debt in this group will be analyzed at a later point.

Figure 12 displays the sums owed by households to each creditor group, while Figure 13 shows the percentage of households that owe money to each creditor group, by head-of-household age. We can see that the distribution is quite similar throughout the age cross section, except for the large number of households headed by 45-49-year-olds that owe money to relatives and friends (the difference is statistically significant). In the figure we can discern a correlation between head-of-household-age and debt size. This is a logical finding when considering the positive correlation between age and income; a higher income allows one to reach a higher credit limit (Appendix Figure 2).

Figure 12. Household debts by creditor type, 2016

Married households, by age of head of household



Note: Debt does not include mortgage repayments.

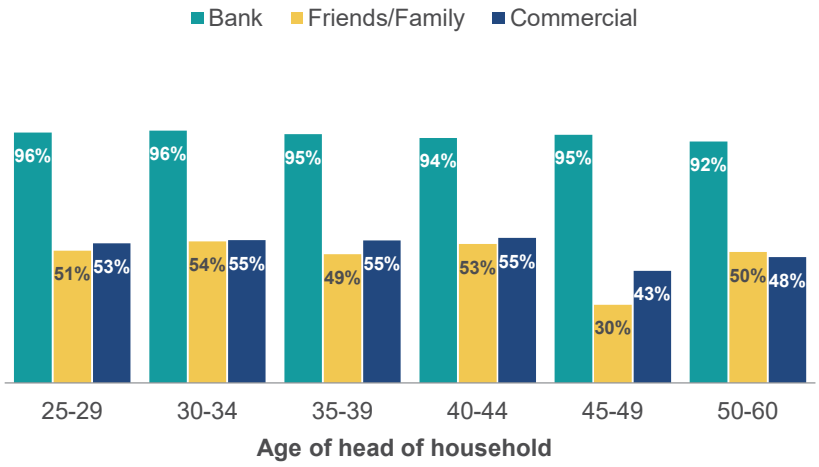
Source: Kyrill Shraberman, Taub Center | Data: Paamonim

17 Debts to government agencies were added to the commercial debt group due to the small number of observations, and to the similarity of debt to agencies like the tax authority, VAT, government debt collection agencies, or local authorities and commercial creditors, who are paid according to arrangements between the borrower and the credit agency.

To determine whether statistically significant differences in average debt size exist between the various age groups, the aggregate hypothesis of equality between age groups was tested. The equality hypothesis was rejected for bank debt, family debt, and commercial debt. Thus, we may say that households headed by individuals ages 45 or over owe larger sums of money to banks than do households headed by younger people. Households headed by people in the 50-60 age group owe larger amounts to commercial creditors than do households headed by younger people, and the exceptional age groups in terms of average size of debt owed to family are households headed by 35-39-year-olds and 50-60-year-olds. This finding may be related to the timing of apartment purchases (in the case of 35-39-year-olds), and perhaps with the provision of assistance to children buying apartments (in the case of 50-60-year-olds).

Figure 13. Share of households in debt to each creditor type, 2016

By age of head of household, as a percent of married households in the age grouping with debt

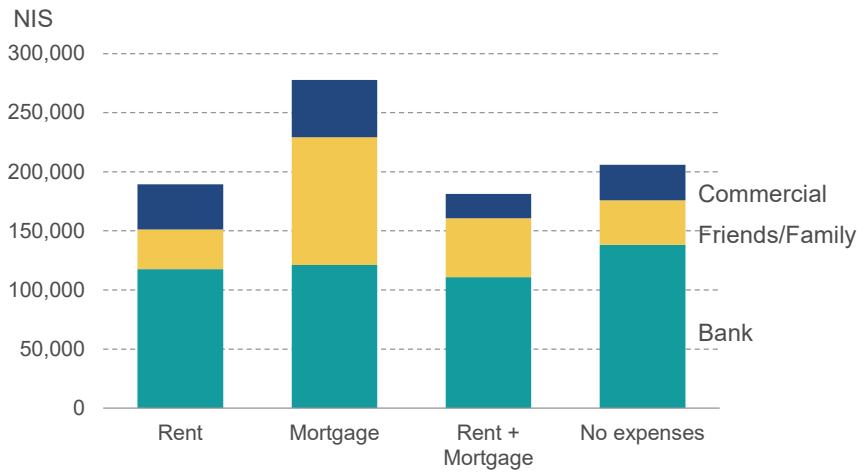


Source: Kyrill Shraberman, Taub Center | Data: Paamonim

A look at the percentage of households with debt by type of housing payment shows a similar picture to that seen in Figure 13, that is: no statistically significant difference in the percentage of households that owe money to any entity out of all households in the group (Appendix Figure 4). By contrast, focusing on debt size shows that there are no statistically

significant differences in the average size of bank debt, but that significant differences do exist between the expenditure groups in the amount of debt owed to family and in the average size of commercial debt (Figure 14). Households making only mortgage payments owe more to family than do households with other forms of housing expenditure, while households paying both mortgage and rent have, on average, lower commercial debt than households in other expenditure groups.

Figure 14. Average debt by creditor type, 2016
Married households, by household expenditure category



Note: Debt does not include mortgage repayments.
Source: Kyrill Shraberman, Taub Center | Data: Paamonim

In addition to the examination of debt data — debt size and type of creditor — by head-of-household age and housing expenditure type, we will now analyze the data by socioeconomic status, represented by per capita income quintile. The comparison results are shown in Figure 15.

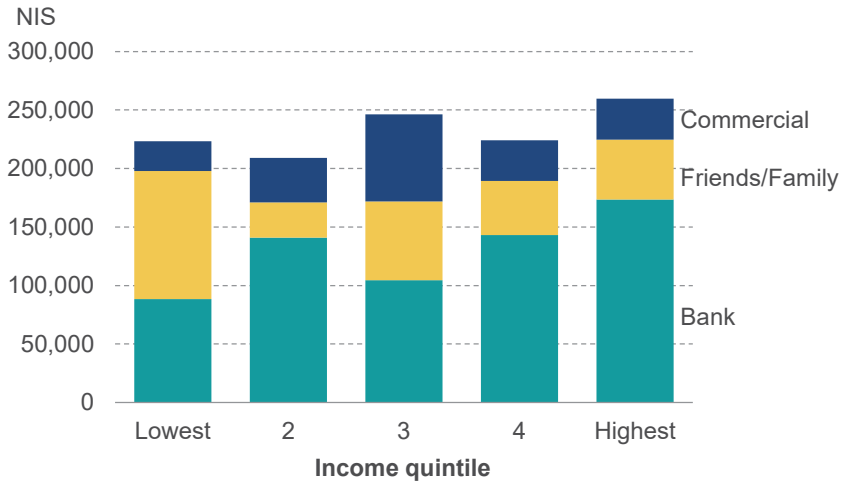
In order to statistically validate the findings, an equality of means hypothesis was tested for average debt size between households belonging to different income quintiles. The hypothesis was refuted for average bank debt, leading to the conclusion that the average size of bank debt for households in the lowest quintile is smaller than that of the other income quintiles. The hypothesis was also refuted for average size of family debt,

making it possible to conclude that the average size of this debt among households in the lowest quintile is greater than that of the other income quintiles. Thus, it appears that economically weaker households are granted less credit by the banking system, but manage to raise larger sums from family.

The hypothesis of equal average debt owed to commercial entities by households in all quintiles was refuted, but at a relatively low level of statistical significance (p=0.068). Thus, we may say that the average amount of debt owed to commercial entities is higher for households belonging to Quintile 3.

Figure 15. Average debt by creditor type, 2016

Married households, by socioeconomic quintile



Note: Debt does not include mortgage repayments.

Source: Kyrill Shraberman, Taub Center | Data: Paamonim

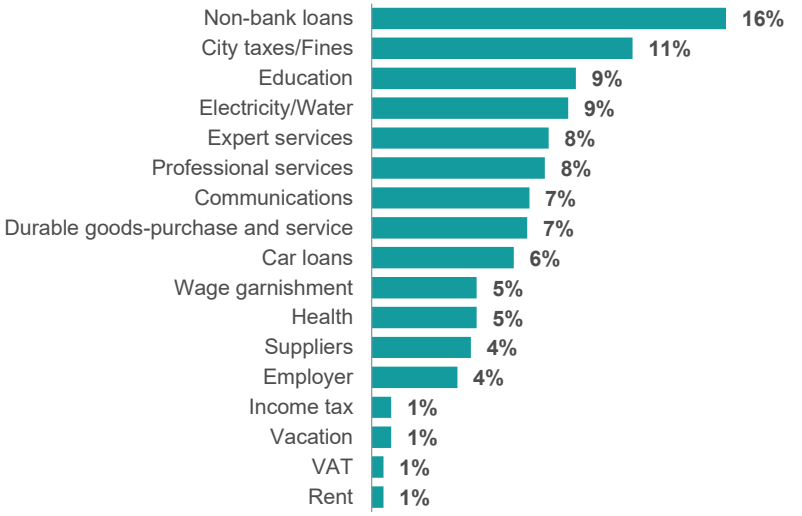
Commercial debt composition

As shown, the share of commercial debt out of all household debt is not large. However, it is interesting to look at this group's creditor distribution, as such debts offer a glimpse not only into non-bank funding sources, but also into the spending management of households that have applied and been admitted to Paamonim programs.

Figure 16 displays the relative prevalence of creditors to whom households owe money. The most common form of debt is financial debt, composed mainly of credit from non-bank entities such as insurance agencies, pension funds, and credit companies such as Mimun Yashir ("Direct Finance"). A large portion of the credit granted by pension funds and credit companies is based on the financial assets of the households managed by these entities: pension funds, provident funds, advanced study funds, and the like. This can be viewed as evidence that households assume debt at the expense of future income. Additionally, the category includes credit received by households from the localities in which they live — primarily kibbutzim, moshavim, and small localities. It is reasonable to assume that this kind of credit is made possible by special programs in support of settlement activity.

Figure 16. Relative prevalence of commercial debt

Married households with debt



Source: Kyrill Shraberman, Taub Center | Data: Paamonim

The second-most common component of commercial debt is *arnona* and fines, while the fourth-most common (after debt to educational institutions) is debt to utility suppliers: electricity, water, and gas. In the earlier sections of this study these two components were (except for fines) classified as home maintenance expenditures, and their correlation with both current

negative gap size and probability of applying to Paamonim was among the highest. The addition of these two findings indicates that home maintenance expenditures are among the major risk factors for financial distress.

Education debt is the third most common category. Like home maintenance expenditures, education spending is also positively correlated with current negative gap size and with the likelihood of being a Paamonim client.

An analysis of the prevalence of the various forms of commercial debt suggests, overall, that households not only assume debt in order to deal with gaps between current income and expenditure; they also defer payments. These deferments allow them to "buy time," i.e., to improve their current gap situation in the immediate term. Thus, we can say that the correlation between current negative gap size and this form of expenditure is larger than the monthly income and expenditure data would make it appear. For example, deferring education payments lessens the share of monthly education expenditure out of total expenditure and reduces the current negative gap, thereby lowering the estimated correlation between these expenditures and per capita current negative gap size.

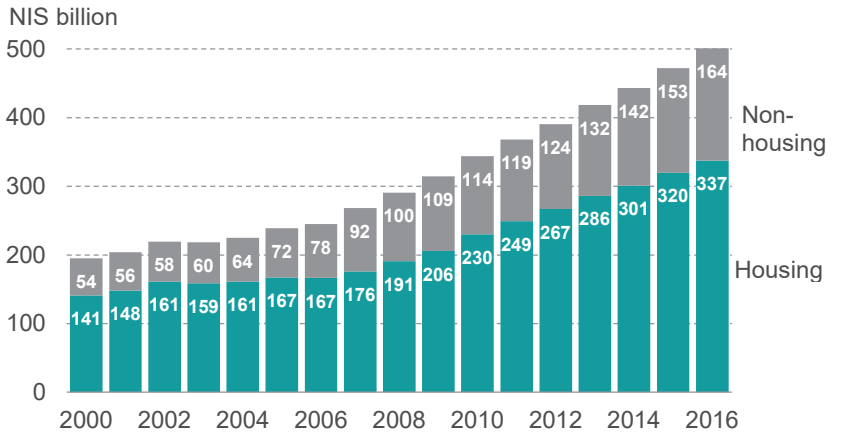
4. Households' "mountain of debt [credit]"

This section will look at the total debt assumed by households or, as it is sometimes called, the "mountain of debt." With regard to aggregate credit data, there are several sectors that offer credit to households, first and foremost the financial sector: banks, insurance companies, provident and pension funds. The government and the non-financial sector also offer credit to households and individuals. In this section, we will look at the debt assumed by households, without distinguishing between creditors. This is another component of the household financial liability, through which we will be able to compare the aggregate financial status of Israeli households to that of their counterparts in other countries.

Like any aggregate economic data (number of employed persons, GDP, etc.), household credit has increased from year to year. Since 2007, the rate of growth of total household credit has accelerated, compared with the growth rate that prevailed between 2000 and 2007 (Figure 17). Not only does the rate of change differ between the two time periods, the sources of increase differ as well. Between 2000 and 2007, the average annual rate of change for housing credit (primarily mortgages) amounted to 3.2 percent; during the period 2007 to 2016 this figure doubled, reaching 7.5 percent per year. Non-housing credit, by contrast, grew at an average annual rate of 8 percent during the first period and at a lower rate of 6.6 percent between

2007 and 2016. The large upsurge in housing credit during the latter period is no surprise; it correlates with the meteoric rise in Israeli housing prices, which began in 2007 (Appendix Figure 1) and continues to this day.

Figure 17. Household credit
2016 prices

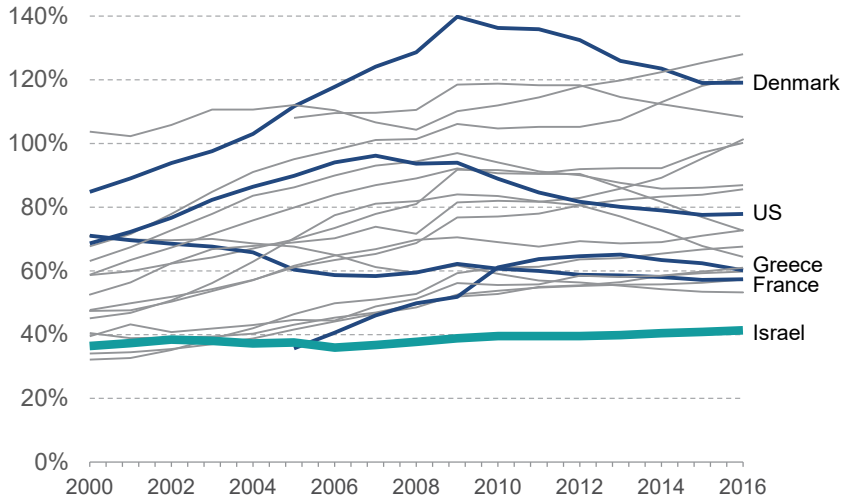


Note: Data are correct to December of every year.
Source: Kyrill Shraberman, Taub Center | Data: Bank of Israel website

Although the mountain of debt has been growing faster over the past decade, it is not enough to look at its "height": we also should take into account changes in GDP in same period. If we think of all Israeli households as one great household, then looking at total credit relative to GDP can be compared to looking at the total loans taken out by a family relative to its income, or the degree to which that "great" family is "leveraged."

When we assess the leveraging of Israeli households compared with households in other countries, we find that, despite the sharp rise in total credit, Israeli households' leveraging is lower than that of the other OECD nations (Figure 18). The ratio also shows surprising stability. The explanation is that, although total household credit has grown in absolute terms, the pace of growth has been similar to that of the GDP growth rate.

Figure 18. Household credit as a percent of GDP
Israel and OECD countries (in grey)



Source: Kyrill Shraberman, Taub Center | Data: OECD

Conclusion

The present work tries to understand how households sink into debt. Given the difficulty of assessing actual debt, due to data limitations, the study focuses on the current gap between households' net income and their monetary expenditures on consumption and housing. The assumption is that current negative gap constitutes an estimation of the likelihood of falling into debt. The larger the negative gap is, the greater the chances of a household sinking into debt. This assumption is supported by a comparison of the current study results and those from a Consumers' Confidence Survey featuring subjective testimony by households regarding their economic status. The percentage of households that reported being "forced to use savings," or "in debt" amounted, on average, to 32 percent of the respondents in 2015 (Appendix Figure 6). The share of households with a current negative gap that year reached 35 percent for married households and 39 percent for unmarried households. It can thus be said that the estimation offered in this study is a fair approximation of Israeli households' financial status.

An analysis of the correlations between household attributes and size of current negative gap (expenditure exceeding income) per person testifies to differences between married and unmarried households in terms of the factors correlated with negative gap. Among unmarried households the predominant factor is type of housing payment. By contrast, for married households the most important factor in determining gap size is household socioeconomic status, represented by income quintile. For this group as well, however, type of housing expenditure significantly correlates with size of current negative gap, especially simultaneous mortgage and rent payment.

The study finds that, of all consumption categories, the share of personal expenditures (clothing, footwear, cosmetics/hairstyling, and tailoring/laundry services) has the greatest impact on per capita current negative gap size, for both married and unmarried households. Another notable finding is the disparity between married and unmarried households in the importance of basic home expenses (electricity, water, gas, heating, and property tax) expenditures in determining the current negative gap per person. For married households, these expenditures have the second-greatest degree of impact on gap size, while for unmarried households the correlation between the two is statistically not significant.

It was also found that a rise in the share of home maintenance expenditures increases the chance that households with a current negative gap will be participants in programs run by the Paamonim organization. The households' analysis showed that home maintenance expenditures are the second most common cause of this type of debts. High prevalence of debts related to home maintenance testifies to deferred payment of these bills as a means of reducing the monthly current gap — and if these payments were not deferred, the gap would presumably be larger and the correlation between home maintenance expenditures and current negative gap would, accordingly, be even stronger. A reduction in the cost of services in this expenditure category would likely lower households' risk of financial hardship.

An examination of the total credit granted to Israeli households (relative to GDP) shows that despite a large upsurge in credit, for both housing and non-housing items, Israeli households' leveraging level is among the lowest of developed countries, as of 2016. This appears to be the result of centralization in Israel's banking system, which does not allow a broad supply of credit. The entry into the credit market of financial entities such as pension funds and insurance companies constitutes an appropriate alternative to bank credit, but the use of this credit source — or, more accurately, the receipt of better terms than those offered by bank credit — is possibly only for those with

assets in these entities. Non-bank credit offered by commercial companies that specialize in this sphere generally comes with less favorable terms than those offered by banks, as these entities assume that the customers applying to them have been turned down by banks. Closer supervision of the extra-banking system entities may curb their exploitation of the credit-seekers who apply to them.

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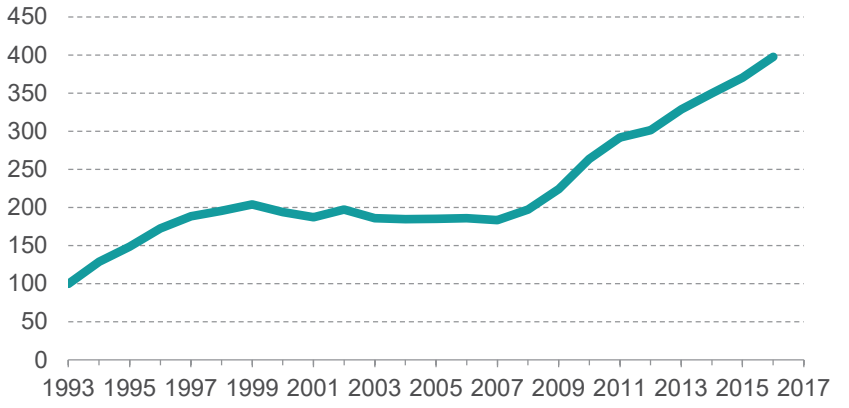
Appendix Figure 1. Trends in housing prices

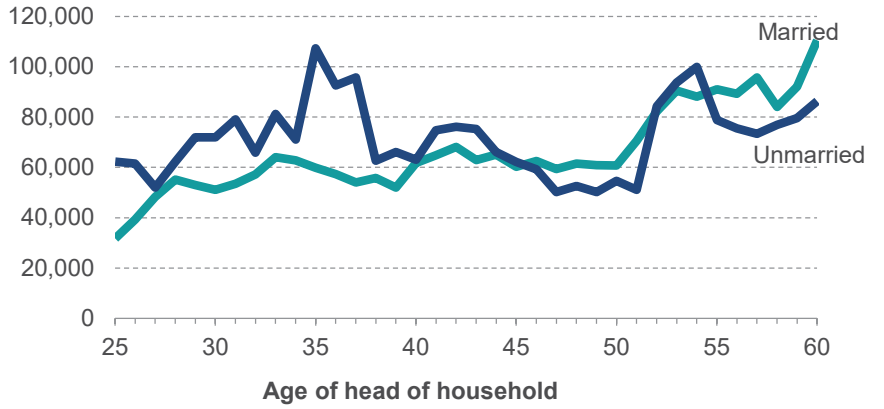
1993 = 100



Source: Kyrill Shraberman, Taub Center | Data: CBS, Israel's Database of Prices and Price Indices

Appendix Figure 2. Annual income per person, 2015

By family status and age of head of household, NIS

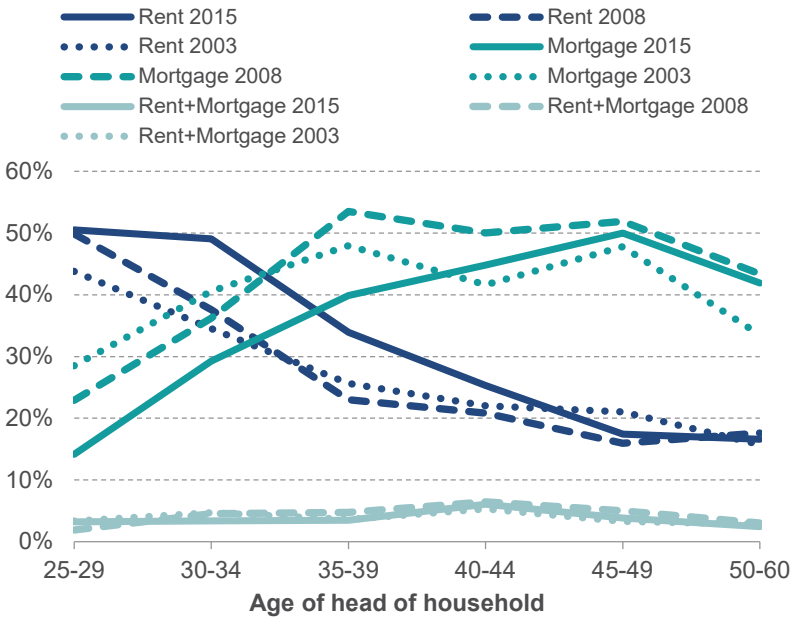


Note: Five-year average.

Source: Kyrill Shraberman, Taub Center | Data: CBS, *Household Expenditure Survey*

Appendix Figure 3. Housing expenditure

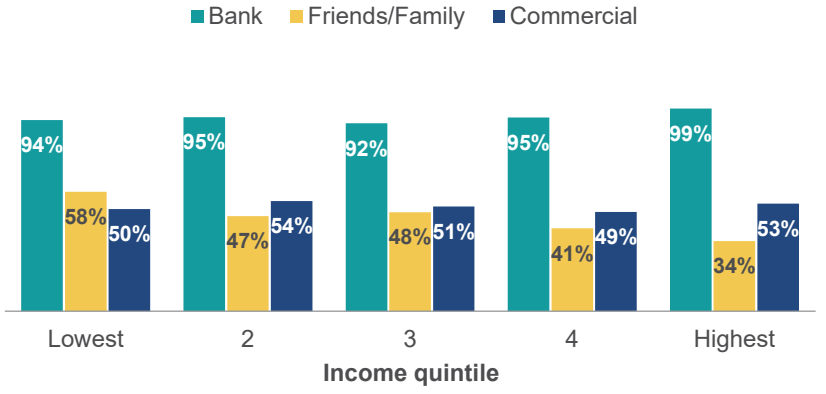
By age of head of household and family status



Source: Kyrill Shraberman, Taub Center | Data: CBS, Long-Term Survey 2014-2015

Appendix Figure 4. Share of households with debt to each creditor type, 2016

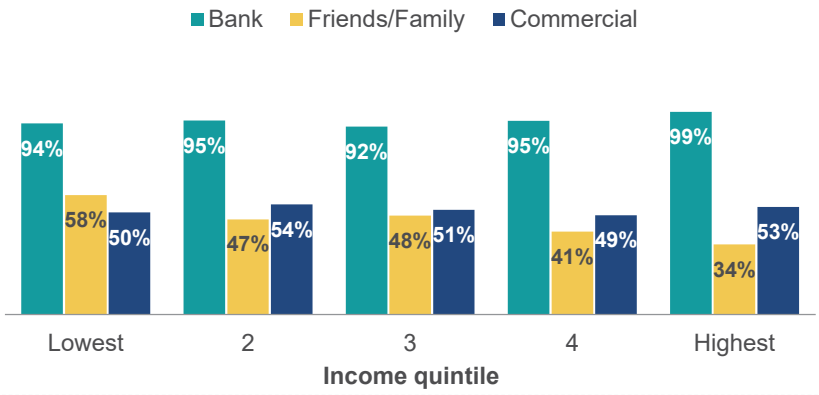
As a percent of all households with debt



Source: Kyrill Shraberman, Taub Center | Data: Paamonim

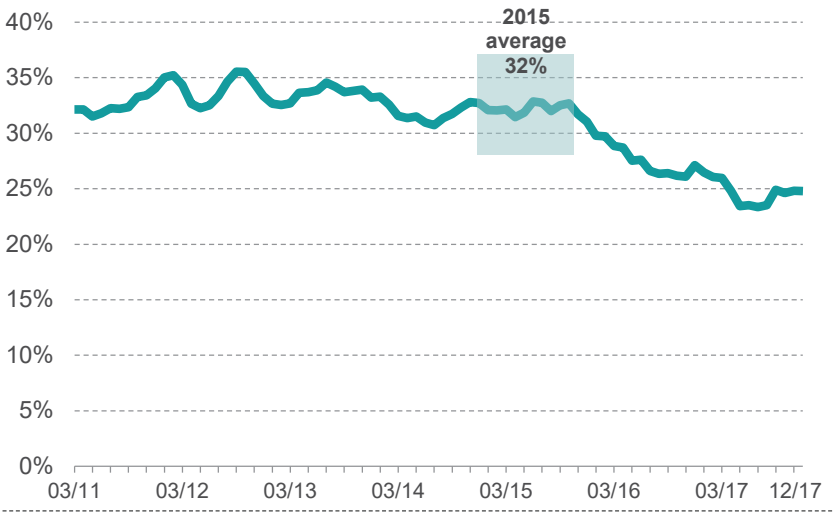
Appendix Figure 5. Share of households with debt to each creditor type, 2016

By income quintile, as a percent of all households with debt in each quintile



Source: Kyrill Shraberman, Taub Center | Data: Paamonim

Appendix Figure 6. Share of households that answered "in debt" or "forced to use savings" when asked about their financial situation



Source: Kyrill Shraberman, Taub Center | Data: CBS, Consumer Confidence Survey