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Probability of requesting unsecured loans: analysis of Russian household finances

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Abstract

Household spending usually accounts for about 70% of total spending in the economy. An important role in the financing of household spending play lending, and Russia is no exception. The aim of this research is to measure the elasticity of the loan request probability in relation to the interest rate with given inflation expectations. Our model is estimated using the unique data obtained from the All-Russian Survey of Consumer Finances, which contains information on more than 6000 households in Russia.

We identify a set of Russian households' characteristics that are key drivers for households' requests for credit. The results show that growth in inflation expectations positively correlates with demand. It also takes a significant change in interest rates for the interest rate channel of monetary policy (with regard to unsecured loans) to make an impact.

The model estimates we obtain are used in scenario forecasting to project the number of households requesting loans. According to a mid-point forecast by Rosstat, demand in terms of household count will be steady and boosted by the growth of the population of 18+ years of age. Even so, this growth is expected to be offset by a changing demographic structure. The results may be specific only to the period under study (2020–2022) and are not necessarily universal.

Keywords: household finances survey, survey of consumer finances, demand for credit, probability of requesting loans, elasticity of demand in relation to the interest rate, credit demand drivers

JEL codes: G51, D12, G21

Content

1. Introduction

Household spending usually accounts for about 70% of total spending in the economy, and Russia is no exception. Lending plays an important role in the financing of household spending. Understanding the drivers and dynamics of demand for household loans helps central banks make better monetary policy decisions and formulate policies aimed at financial stability, financial market development and better financial inclusion.

Empirical research into demand for loans is complicated by the fact that most spending decisions and decisions as regards the financing source are made not at the level of an individual consumer but of a household as a whole and under the influence of family (general) factors, including the income and needs of the whole family rather than an individual consumer. This means that it is a 'household' that is the appropriate object to investigate demand for loans. However, the availability of data from this perspective is quite limited (even in the case of commercial banks or credit bureaus).

In 2022, the Bank of Russia ran the fifth wave of the longitudinal All-Russian Survey of Consumer Finances. This survey contains a detailed questionnaire about demand for loans, loan denials and actual loan disbursements to households. The survey's microdata base is available on the Bank of Russia website. These unique data, covering more than 6,000 households, lay the groundwork for deep insights into demand for credit. [1]

The key task on hand was to assess the elasticity of demand for credit in relation to the interest rate – an indicator that features prominently in monetary policy decisions. This preprint operates survey data on households' loan applications (past and planned) and loan rates of banks in the place of residence of households, based on an aggregator website for banking services. The use of banks' interest rates available in the area of households' residence based on aggregator website data helps identify the interest rate variation which is exogenous to a specific household. This approach is similar to Magri's, a Bank of Italy researcher – Magri (2007). [2]

[1] Demand for loans was measured based on responses to two questions in the individual questionnaire. Question C1.1 establishes the fact of requesting a loan in the past (in the two years before the last survey wave): 'Let me ask you a few questions about loans. Have you personally applied for a loan in the last two years?' The second question (C1.26) indicates the intention to apply for a loan in the future: 'Are you currently thinking about taking out a loan?', which is complemented with Question C1.27 ('What type of loan do you intend to take out?') to distinguish between demand for a *consumer loan including an emergency loan* or a *credit card*.

[2] In what can be follow-on research, we plan to use data on actual disbursements of unsecured loans to households (including credit cards) and interest rates on such loans. There are several stages in bank-borrower interactions, involving the non-randomness of selection: a loan application stage, a stage for the bank to approve the application, and a final decision stage – when the household agrees to take the loan on the bank's terms (which could have changed at the second stage) – see Duca and Rosenthal (1993). This study needs to address another potential problem – the endogeneity of interest rates. This problem arises when banks determine the interest rate based on borrower characteristics, i.e. when such characteristics also affect the volume of households' demand for loans. To eliminate this problem, interest rates on actual loans and those offered by banks must be instrumented with the characteristics of the banking system in the place of residence of households (including interest rate offerings in each place). Such characteristics do not depend on the characteristics of specific borrowers but may affect bank rates. This study is split into two parts owing to the large volume of material.

Going by all the works focused on Russia we know, we are the first to obtain estimates for the elasticity of the loan application probability (largely unsecured loans) in relation to the interest rate, which are based on microdata of Russian households (not individual consumers). [3]

The data characteristics make it impossible to differentiate loan types (auto, mortgage, etc.), but taking into account the credit structure in the data we operate, the results mainly relate to unsecured loans (including credit cards). Therefore, credit is hereinafter understood as unsecured consumer credit.

For example, a 1pp increase in the interest rate from the average level lowers the loan request probability by 1.5–2.3%. [4] That is, the sensitivity of the probability to small changes in the interest rate is relatively low. It is nevertheless notable – compared to the average loan request probability of 0.27. A significant change in the rate (for example, due to the profound tightening of monetary policy in 2015 or 2022) has a tangible impact on the probability. A 10pp rate increase from its average level reduces the probability by at least half its average level and all the way to the point of a zero probability. These results seem quite natural given that we focus mostly on unsecured loans. The level of interest rates on unsecured loans significantly exceeds the key rate, which suggests a lower role of the price factor relative to other loan types. For other types of credit, a stronger response should be expected. Furthermore, the type of unsecured loans such as credit cards is characterised not only by high interest rates, but also by a strong variation of interest rates even if adjusted for borrower and credit card characteristics. In other words, when there is a choice, borrowers tend to choose cards with higher interest rates, which indicates the importance of non-price demand factors, see Galenianos and Gavazza (2022).

In interpreting the results, it is important to take into account that the Russian survey of consumer finances was conducted between March and September 2022, covering the past two years. The results may reflect 2020–2022 – the period under review marked by macroeconomic shocks and structural changes in the economy, rather than a more universal pattern, which would be typical of calmer periods. In particular, these two years include both short-term episodes of feverish demand for consumer goods and real estate and the associated financing, as well as the longer-term episodes of demand contraction, including for loans, and preferential lending programmes. [5] This variation in demand for loans in the sample may influence estimated sensitivity of demand to the interest rate. We assume that elasticity may be underestimated: during the period of feverish demand in March 2022, interest rates rose sharply. Subsequently, moderate consumer activity driven by uncertainty and supply-side restrictions coincided with the period of interest rate cuts, see the Bank of Russia (2022b).

[3] Demand for credit in the two years before the survey does not differentiate loan types; however, the survey shows consumer loans and credit cards are in the lead by the number of actual loan disbursements. Planned demand with a known loan type is considered to pertain to unsecured loans (including credit cards).

[4] Unfortunately, the obtained result is not robust to the inclusion of the unordered geographic heterogeneity of demand in addition to the ordered variation of interest rates in the place of residence of the household. This is what we show in what follows and discuss the causes.

[5] See Bank of Russia (2022a), Bank of Russia (2022б) and Bank of Russia (2020).

The obtained estimates assume unchanged inflation expectations. A rise in households' inflation expectations makes it more likely that households will request loans. [6]

A supporting task is to analyse the role of households' other characteristics. In the literature, these characteristics are usually used as loan demand (loan request) drivers. Such explanatory variables are households' social and demographic attributes, economic and financial characteristics, regional factors, and sentiment and expectations.

In this context, our contribution supplements the previously made findings, based on surveys of consumer finances or credit register data, regarding the role of such drivers (see Crook (2001) for the United States, Chen, K. C., and Chivakul, M. (2008) for Bosnia and Herzegovina, Arango and Cardona-Sosa (2023) for Colombia).

Compared to the studies of demand for loans based on microdata of Russian households, such as Sabelnikova (2017, unpublished), [7] our research is grounded in a new and more detailed source of granular data (compared to RLMS data or Rosstat's survey of households). Household finances survey data enable more accurate estimates of the financial variables (more accurate measurements of net wealth, financial literacy, and financial inclusion).

We rely on the obtained probability model to build scenario forecasts for loan demand for demographic characteristics of Russian households over the medium term. In this area, our calculations supplement the results of Tishin (2020).

In the scenario consistent with the mid-point demographic forecast of Rosstat, the expected number of households exhibiting demand for credit (over two years) is little changed. At the same time, the growth of the population aged 18+ is offset by a change in the demographic structure, unfavourable to credit demand. While on this subject, lenders focused on products for certain age groups should take into account that demand will decline on the back of structural changes (the population aged 30-44 years is expected to generate lower demand in 2035).

The work is structured as follows. Section 2 provides an overview of the relevant literature and our contribution to this literature. In Section 3, we describe the data and the regression variables we operate. Section 4 presents the loan request probability model with consideration for the limitations we faced as to data availability; the model is subsequently estimated on survey data. Section 5 presents regression estimates in several specifications and with due account for some robustness checks. Section 6 contains the description and results of the scenario forecast for the number of households applying for loans (over a two-year horizon). In the Conclusion, we present our key findings and a plan for follow-up research.

[6] With the measure of inflation expectations being categorical in nature, in the current dataset it is impossible to compare the elasticity of demand relative to the nominal rate with set expectations and the elasticity of demand relative to inflation expectations with a set rate. In accordance with the hypothesis about the demand response to real, rather than nominal, rates, these elasticities should coincide. This comparison will be possible when the model estimation is based on the data of future surveys.

[7] For Russia, there are also studies of demand based on aggregate data, for example Mishura (2021), a work dedicated to the housing market.

2. Literature review

Our work is related to empirical research of demand for household loans based on microdata – data from surveys of consumer finances or credit bureaus (and, less common, data from randomised experiments) – see Crook (2001) for the US, Magri (2007) for Italy, Chen, K. C., and Chivakul, M. (2008) for Bosnia and Herzegovina, Arango and Cardona-Sosa (2023) for Colombia. The theoretical foundations of households' decisions to join the credit market are described in Bertola et al (2006) and Magri (2007). Two dominant theories of credit demand stand out in the literature: the *permanent income hypothesis* and the *life cycle hypothesis*, which complement each other. They both assume that households solve the task of maximising consumption given intertemporal budget constraints. In the first case, demand for credit arises when income temporarily deviates from the *permanent* level (it may also be a steady level in the future). In the second, demand for credit is typical of younger ages, when actual income is small and future income (which may be permanent) is higher. As a result, demand for credit theoretically depends on interest rates, intertemporal preferences (discount rates), current and expected incomes, and uncertainty as to the flow of future income and risk appetite, as well as on *life cycle* indicators, ie social and demographic characteristics of households.

Chen, K. C. and Chivakul, M. (2008) offer an overview of empirical evidence for demand for loans (loan applications) presented by several researchers on data from six countries. In practice, relevant loan request drivers include income and wealth, education, employment status, and socio-demographic characteristics. The studies find that a loan request probability depends quadratically on the age (inverted U-shaped) and peaks in the neighbourhood of 30–35 years. The probability increases as income increases (some studies show the quadratic dependence; demand begins to decline starting from a certain level of income). The wealth effect reduces the loan request probability; however, a number of studies find that this dependence is quadratic and peaks midway. A growing level of education and skills increases the loan demand probability, whereas unemployment reduces it. Other factors of interest to researchers include geographical variation (locality: rural or urban), see Magri (2007), and the indicators of risk appetite and household expectations or sentiment, see Duca and Rosenthal (1993).

Our research belongs to those aiming to estimate the elasticity of credit demand in relation to the interest rate (credit price [8]), among other tasks.

All such studies are overall divided into two groups depending on the type of data used:

– experimental, based on a randomised experiment (the RCT approach) in which potential borrowers are offered random interest rates (which do not depend on borrower characteristics), see Karlan and Zinman (2005), Alan et al. (2013), Karlan and Zinman (2019);

– actual data, of which there are two types.

[8] A number of empirical studies fail to account for the price of credit, which, according to microeconomic theory, has a key role to play in shaping credit demand.

The first type is actual loan applications, ie actual data on demand for credit. At the same time, data on loan application facts are more commonly available (and show the number of consumers applying or planning to apply for a loan); less common are data on volumes of planned demand for credit, as in Alessie et al. (2005).

Actual data of the second type are more easily obtainable. They are transaction data, ie the actual amounts of loans (or the number of households loans were extended to) and actual interest rates.

Both types of actual data are available for our analysis. In the case of data on loan applications, we know the fact of applying for a loan in the past or the intention to apply for one in the future. The use of such data provides for interest rates to be loan rate offerings regardless of characteristics of a specific household. More precisely, the rates should not depend on characteristics unobservable for the researcher. Yet, such characteristics are observable for the bank that makes loan rate decisions. If this condition is not met, the household may make the loan decision in consideration of the factors which, being observable for the bank, allow the bank to set a higher rate to a particular borrower (on the assumption the borrower agrees regardless). If the researcher is unable to control for this factor, correlated with both the rate and demand, this factor – unobservable for the researcher – will cause the asymptotic bias of the estimate. Alan et al. (2013) show that the bias resulting from the misalignment between the interest rates the bank offers and the variation exogenous to credit demand may be large. Magri (2007) suggests treating the actual loan rates offered by banks in the place of household residence (which are then the same for all households of the same place) as interest rates on the supply side, which in this case are exogenous to a specific borrower.

Our contribution to this literature is the application of the Bank of Italy's methodology consistent with Magri (2007) to Russian loan request data (loans of the past and intentions) and the available banks' rates. Ultimately, of all the published works we know, ours is the first to obtain estimates for the elasticity of the loan request probability in relation to the interest rate, based on microdata of Russian households. For the two years before the survey, we cannot specify the loan type; planned demand pertains to unsecured loans (including credit cards [9]).

When actual transaction data are used to estimate the demand function, it is important, first, to identify the exogenous variation in the actual interest rate unrelated to demand for credit. This is often achieved through the method of instrumental variables. Second, it is equally important to adjust for non-random borrower selection. This is implemented through the Heckman model. [10] Identification is based on this approach in Attanasio et al. (2008), Alessie et al. (2005), Gross and Souleles (2002). [11] Lukas (2017) uses data on actual loan disbursements, but in the work the actual rate offering is universal

[9] This is explained by both the large volume of data in the demand sample (ie by the large scale of the phenomenon itself) and the smaller non-market distortions in this segment, in relation to, for example, mortgages or auto loans with their commonly subsidised loan rates.
[10] see Cox and Jappelli (1993), Duca and Rosenthal (1993)
[11] Gross and Souleles (2002) use credit register data unadjusted for non-random selection.

across all borrowers (does not depend on the borrower and is specific to the loan type). This is how the author addresses the problem of endogeneity pertaining to the rate[12] [13]

The additional contribution of our work to current literature is enhancing the previously obtained findings, which are based on household finances survey or credit register data exposing the role of credit demand factors other than interest rates.

Compared to a study of demand for loans based on microdata of Russian households, such as Sabelnikova (2017, unpublished), our research is based on a new and more detailed source of granular data (compared to RLMS data or Rosstat's survey of households). Household finance survey data enable more accurate estimates of the financial variables (net wealth, financial literacy, and financial inclusion).[14]

Finally, we build scenario forecasts for loan demand based on demographic characteristics of Russian households over the medium term. In this area, our calculations add up to the results of Tishin (2020).

3. Data

3.1 All-Russian Survey of Consumer Finances data

The study is based on data obtained from Wave 5 of the All-Russian Survey of Consumer Finances, a project under way since 2013.[15] [16]

In terms of global standards, this survey is a standard approach to obtaining data on household income, consumption, financial and non-financial assets, and financial liabilities. The survey also includes detailed information on the socio-demographic characteristics of households. Survey questionnaires are made up of a large number of subjective questions about household sentiment and expectations Wave 5 covered 6,082 households including 12,162 respondents residing in 32 constituent entities of the Russian Federation. This longitudinal survey is run every two years.

In practice, researchers can access the following direct data on credit demand:

– quantitative data: details of the volume or amount of demand;

[12] Having said that, the author does not make an adjustment for self-selection, analysing the actual population of borrowers.

[13] Transaction data are available from the Russian survey of consumer finances, which forms the basis of our study, but their analysis will be the focus of our future research. In general, current studies offer mixed results as to the elasticity of demand in relation to the rate, in terms of both statistical and economic significance. As a rule, elasticity tends to be low in the case of low-income households.

[14] For the second part of the work, it is important that household finance survey data expose the facts of loan denials, for such data contain more attributes of actual loan disbursements (terms, rates, purpose, etc.) and more detailed information about the loan generation process (such as a higher rate the bank offers or a downward revision of the loan amount).

[15] We plan to partially expand the analysis to include data from the previous waves of the survey. The words 'partial' means that some Wave 5 questions relating to demand for credit and the measurements of explanatory variable regression equations cannot be comparable to the questions of previous waves.

[16] Details of the survey description, its methodology and questionnaires (individual and for the household as a whole), as well as the data we use are available on the survey webpage: All-Russian Survey of consumer finances 2022 on the Bank of Russia website, as well as in the works of Bessonova, E. and Tsvetkova, A. (2023), Bank of Russia (presentation, 2023).

– qualitative (binary) data: the very facts of loan requests (if demand for credit was present or not).

In both cases, there are two types of data:

– actual demand for credit in the past;

– planned demand for credit in the future relative to the survey time.

Data on actual demand for credit are valuable in reflecting demand for credit as a fact, whereas planned demand data are information about intentions, and such data can reflect nothing more than household sentiment at a certain point in time. Such sentiment is prone to change even in a close temporal neighbourhood of the survey.

The survey adds value to a study of demand for credit in respondents stating the fact of applying for loans in the past (previous two years) and of planned demand for loans in the future. Demand for loans is then directly observable, at least at a qualitative level, considering that researchers often have to identify demand through the volume of actual disbursements. Only qualitative data are available for our analysis, both for actual and planned demand for credit. Actual demand in our case reflects the fact of applying for a loan in the past since the start of the survey two years before.

Unfortunately, the type of loan households requested in the previous two years is unknown. Thus, the actual demand model's estimates will be a sort of average of estimates from models for different loan types.[17] For future demand, however, a breakdown by loan type is possible. Here we focus on demand for unsecured loans (including for credit cards), which are the most representative in the sample.

Credit bureau data may be an alternative source of credit demand data. The advantage of credit bureau data is their continuous, rather than sampling (as with survey data) nature. Nevertheless, survey data take precedence since a survey furnishes household-level information. It is a household, rather than individual individuals, that is the right object to study the patterns of decisions in the lending market. Households' demand for loans is formed at the household level and under the influence of family (general) factors. Loans are serviced out of general rather than individual income.

Apart from surveys, there are other sources of information on demand for loans. Incidentally, two other surveys of Russian households (RLMS and data from Rosstat's survey of households), include a question to establish the fact of household demand for credit (and planned demand, in the RLMS survey). However, the alternative surveys fail to provide full information on household assets and liabilities, which makes it difficult to measure a number of explanatory variables in the demand models. Furthermore, these alternative surveys lack information on loan denials (which is essential to correct the bias in model estimates for loan volumes). Unlike the detailed characteristics of household finances surveys, the information on actual loan disbursements is very brief.

Data from the previous waves of the survey of consumer finances have been used in studies. These data and their key characteristics are described in: Artemova, M. et al. (2018), Mamedli, M., Sinyakov, A. (2018), Sinyakov, A., Ushakova, Yu. (2018), Tishin, A. (2020), Bessonova, E., and Tsvetkova, A. (2023B).

[17] Since the survey shows that most borrowing households have liabilities under unsecured loans, it is only natural to expect that the resulting estimates will better reflect demand for unsecured loans.

3.2 Description of the variables

Appendix 1 lists the variables of this work with a brief description and code designations (as in the regressions). [18]

All the variables are marked with the year of the corresponding survey wave (20 or 22) to which the data belong. This differentiation is needed for data on credit demand for the past two years. To exclude endogeneity, some household regressors were estimated according to the respective household data from the previous wave.

The descriptive statistics are shown in Appendix 2.

To estimate the loan application probability model (Model 4 in the following section), two key dependent variables are considered.

The first dependent variable is a 'loan request for two years before the survey'. The variable Credit_demand_hh_corr2DSTI is generated on the basis of responses to question C1.1 of the questionnaire. *'Now, let me ask you a few questions about loans. Have you personally applied for a loan in the last two years?'* If at least one member answers 'yes', the variable is assigned 1; otherwise, zero. [19]

Unfortunately, the questionnaire does not contain a question specifying the type of loan the individual has applied for in the past two years. [20] This complicates the estimation of the demand models, and the estimates will reflect average demand for all loan types. [21]

The table in Appendix 2 presents descriptive statistics and shows that only 27% of households have applied for a loan in the previous two years. Focus is turning to the significantly higher average loan request probability in Russia, at 0.27 vs 0.057 in Italy, according to Magri (2007).

Figure 1 presents a breakdown of loan-requesting households by income group.

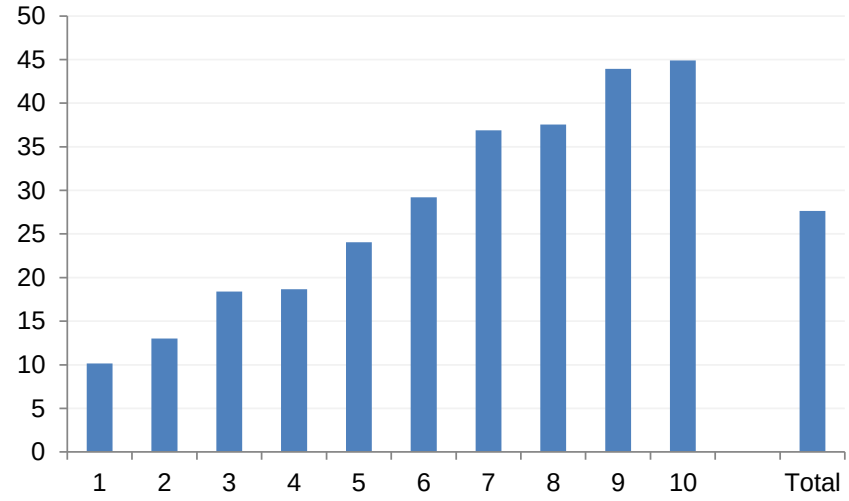
[18] The regression code script and the source data file obtained from the data available on the Bank of Russia website can be downloaded from: https://disk.yandex.com.am/d/Y8rKZVVu5ETl4w. Going forward, we intend to provide the code that generates a variable file for regressions from the website data (currently in development).

[19] Additionally, two adjustments were made. Adjustment 1: some individuals have not requested a loan in the previous two years: they are either still repaying outstanding loans or they are declared bankrupt. Such individuals were assigned *Yes*->, and the variable Credit_demand_hh_corr was obtained.
Adjustment 2: some of the households who have not requested loans in Credit_demand_hh_corr have a non-zero debt burden (DSTI>0). Such households were also assigned *Yes* ->, and Credit_demand_hh_corr2DSTI was obtained.

[20] This information can be restored only for the following household members: a) those who applied and received approval, if the loan was outstanding at the time of the survey, and b) those who applied but were denied. In the latter case, few responses specify the type of loan that was denied.

[21] According to the latest survey of consumer finances, unsecured loans (excluding microloans) account for about 2/3 of the total household debt burden (across all loan types) in the lowest income decile and about ½ in other groups. It is only natural to expect the results to be closer to the demand model for this type of credit.

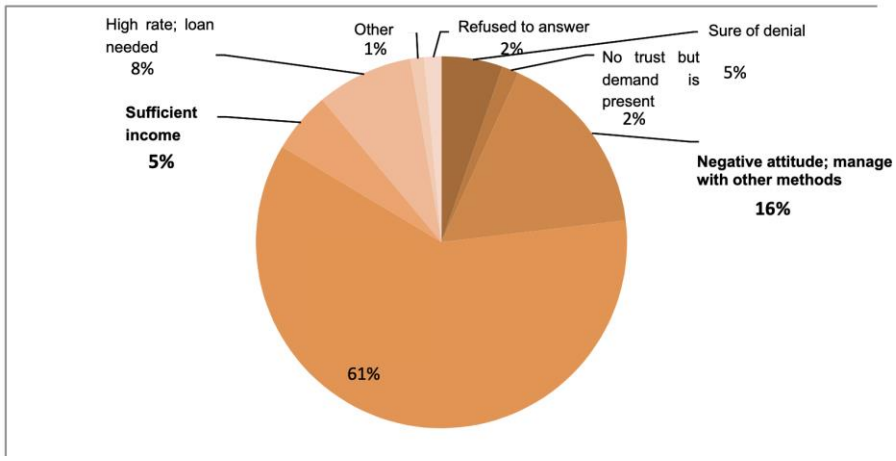
Figure 1. Proportion of households requesting loans by income group, %



Source: All-Russian Survey of Consumer Finances 2022, authors' own calculations.

The reasons for opting out of loans according to the survey data are distributed as follows (see Figure 2).

Figure 2. Reasons to opt out of requesting loan in two years before survey



Source: All-Russian Survey of Consumer Finances 2022, authors' own calculations.

As follows from Figure 2 (except for the bold-highlighted categories), about 80% of respondents have the potential to apply for a loan. [22]

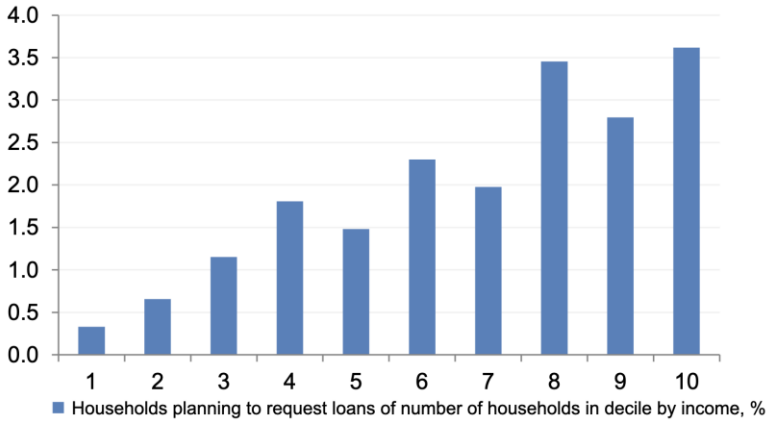
The second dependent variable – 'planned demand for credit' – (coded as fut_credit_demand_consume) is generated on the basis responses to question C1.26. *'Are you currently considering taking a loan?'* Credit_demand_hh=1 if at least one household member answers 'Yes' **and** the question *'What type of loan are you going to take?' was answered* 'consumer loan', including 'emergency loan' or 'credit card'. [23]

[22] Those who have not previously planned purchases needing a loan can in principle change their mind in the future. Only those taking a negative view of loans or whose income is enough to finance their expenses are unlikely to change their decision.

[23] Other response options include: 'mortgage loan', 'construction loan', 'repair loan', 'auto loan', 'education loan', 'business development loan', and 'microloan'.

Figure 3 shows that planned demand grows as the level of wealth grows (measured by the level of spending [24]).

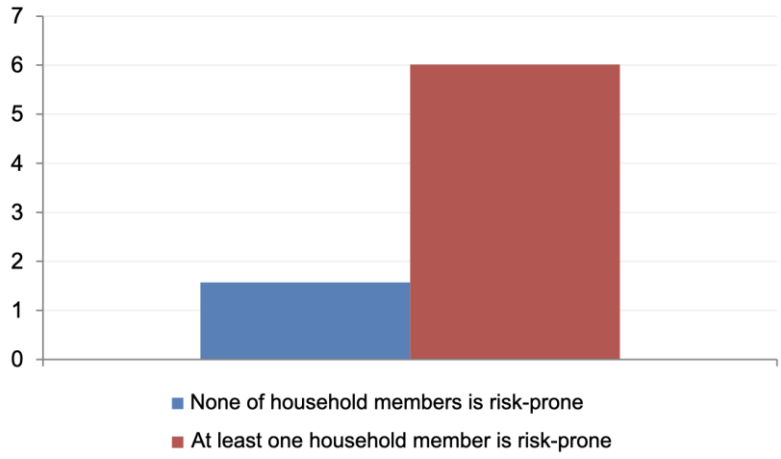
Figure 3. Breakdown of planned demand for unsecured loans by wealth deciles (by per capita spending), % of number of households in decile



Source: All-Russian Survey of Consumer Finances 2022, authors' own calculations.

Interestingly, an important factor in planned demand for loans is the attitude of household members to risk. [25] The higher the risk appetite, the higher the planned demand, as shown in Figure 4.

Figure 4. Planned household demand breakdown by risk appetite group. The figure shows percentage of households intending to request a loan, of respective group, in relation to risk, %



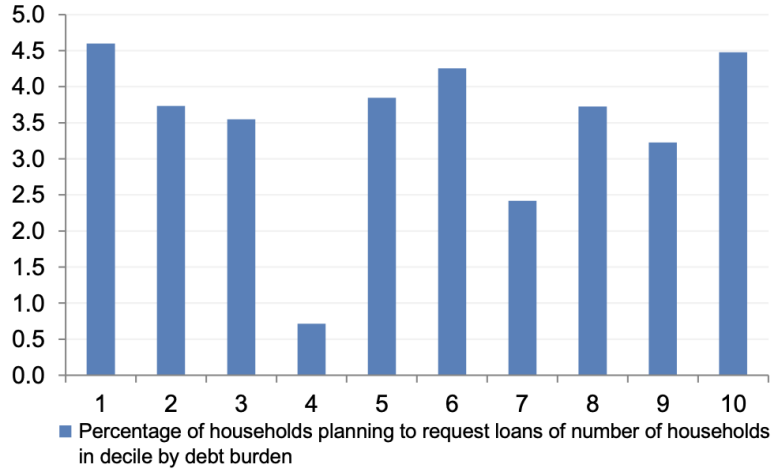
Source: All-Russian Survey of Consumer Finances 2022, authors' own calculations.

[24] This approach to measuring wealth by spending rather than income was used, for example, in Bessonova, E. and Tsvetkova, A. (2023A). The reason behind the substitution is that households are less likely to disclose their incomes than spending. However, household spending can be financed through loans, which is set to result in distortions.

[25] Responses of each member to the question 'Which of the statements best describes you personally?' Options: 'I am ready to take significant financial risks to make a high profit', 'I am ready to take rather strong risks to make a fairly high profit', 'I am ready to take moderate financial risks to make a moderate profit', and 'I am not ready to take any financial risks'. The first option has the value '1'; the rest, '0'. The household-level aggregation follows. Accordingly, the greater the indicator, the greater the risk appetite.

Planned demand is nearly evenly distributed by the household deciles according to the level of their debt load, as shown in Figure 5. [26] Therefore, unlike the level of income, outstanding debt is not a significant loan-planning factor.

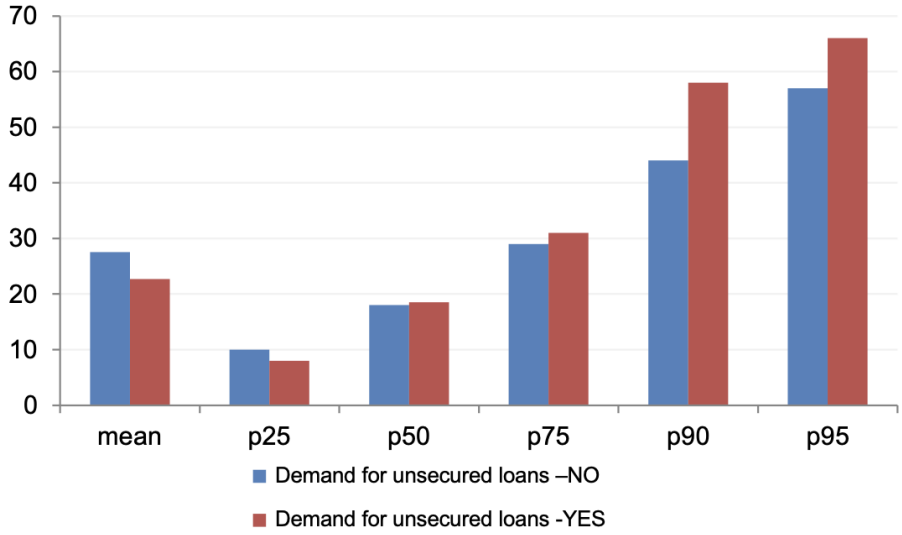
Figure 5. Breakdown of planned demand for unsecured loans by debt burden decile, % of number of households in decile



Source: All-Russian Survey of Consumer Finances 2022, authors' own calculations.

Figure 6 shows that the group of households planning to request a loan and having a debt burden at the time of the survey has a higher debt burden indicator in the upper percentiles than those who do not plan to request a loan. The debt-laden households (the top 10%) who at the time of the 2022 survey planned to take an unsecured loan show a significantly higher level of debt burden than the top 10% of those who did not plan to apply for a loan: 58% vs 44% of their spending.

Figure 6. Debt burden percentiles in planned demand subgroups; debt-to-income ratio, %



Source: All-Russian Survey of Consumer Finances 2022, authors' own calculations.

[26] The methodology behind the calculation of the debt burden indicator is explained in Appendix 1.

The main explanatory variables in this work are standard for estimating credit demand models, see Magri (2007), Arango and Cardona-Sosa (2023), Crook (2001), and Chen, K. C., and Chivakul, M. (2008). The explanatory variables which, as found in the literature, may have a strong influence over demand for household loans are put in the following groups (the full description is in Appendix 1):

– the interest rate: since in theory the *real* interest rate (ie the *nominal* rate adjusted for expected inflation) affects households' decisions, expected inflation should be taken into account.

– financial variables: income and spending, wealth (volumes of non-financial and financial assets, total assets), financial liabilities, and debt burden (DSTI [27]);

– demographic variables: the number of household members aged under 18, the average age of adult household members, and the average age and gender of the head of the household;

– social variables: household size, marital status of the head of the household, the level of education of members (higher educational attainment of at least one member), the share of employed members, and employment status of the head of the household;

– geographical variables: urban or rural area, settlement size, settlement of residence (38), macroregion of residence (one of the four), and federal district of residence;

– subjective variables: risk appetite, expectations as to the future financial position, expectations as to future economic conditions in the country, and financial literacy;

– assessment of financial inclusion (availability of the authors' own calculations, web-based financial services, etc.).

The key variable of demand for loans we are interested in is the interest rate. At the same time, while for households who showed demand, the interest rate on offer can be 'restored' in the survey from the data on actual loan disbursements, it is not possible for those whose applications were rejected or who did not show demand.

Therefore, consistent with Magri (2009), as we make model estimates beginning in the following section, we use the nominal interest rates that individuals could observe in the local market (their place of residence). These are understood to be bank rate offerings at the time of deciding to request a loan in the past two years (between the 2020 and 2022 surveys). One of the sources of information on banks' rates on offer by locality is the website *banki.ru*. This resource provided data on banks' interest rates, which were downloaded and broken down into 38 residential localities of respondents as of 10 February 2023. [28] With the website lacking data on loan rates offered by banks in rural settlements, residents in rural settlements were equated with residents of an administrative centre of the relevant district or region to which the rural settlement belongs.

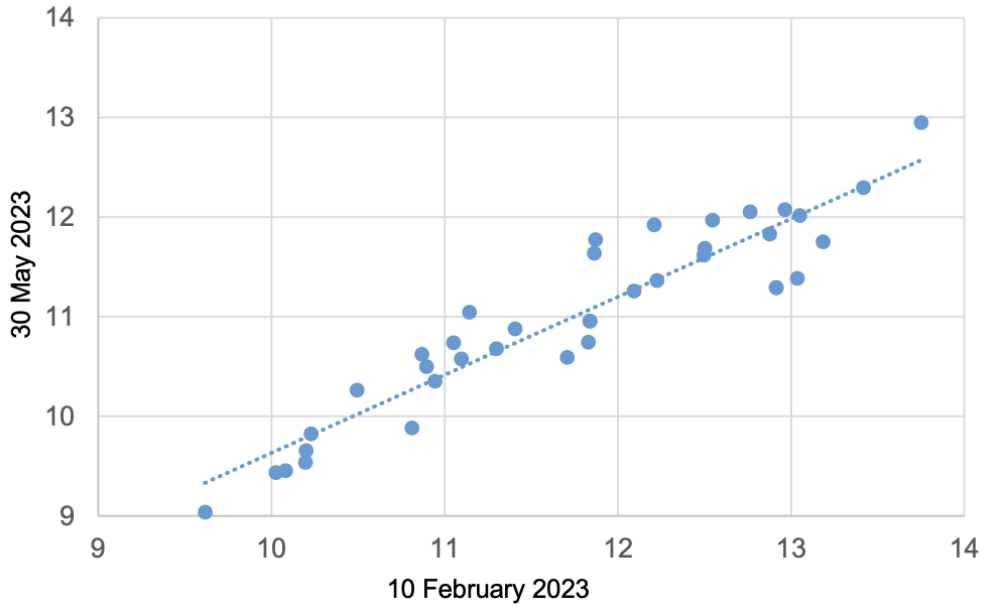
[27] Financial indicators were included in the logarithms to analyse the relationship between such indicators and the loan application probability in order to interpret such changes in the indicators as interest rate changes, rather than changes in absolute values (rubles).

[28] The populated localities of the survey are not publicly known, but are known to the Bank of Russia, which commissions the survey (excluding respondents' addresses).

Measured in this way, the interest rates reflect only geographical variation and do not change from household to household within one place of residence of such households.

Unfortunately, the resource does not contain historical data on rates to ensure that the downloaded data are aligned with survey dates. The absence of historical data will not prevent the use of data on rates if the geographical variation of rates persists over time. In other words, if the interest rates in locality A are invariably higher than in locality B, the rates observed by households over the last two years can be substituted with the available breakdown of interest rates of a later period. To verify this, we ran a further download of data as of 30 May 2023. Figure 7 shows that the distribution of rates over time is stable (the past five months see a decrease in the level of loan rates offered in all localities, with the rate line running below 45 degrees).

Figure 7. Interest rates on unsecured loans in survey localities for two data download dates, % per annum



Sources: banki.ru, authors' own calculations.

In addition to nominal rates, the model includes inflation expectations to account for real interest rate effects. It is important to take into account that not only nominal, but also real interest rates should be exogenous a household's decision to request a loan. Let us imagine that a third variable (for example, information about a planned change in the central bank rate) weighed on both inflation expectations and the decision of households to request a loan. Then the data will show a correlation between inflation expectations (real interest rates) with the decision to request a loan. This would lead the researcher to make erroneous conclusions about the role of inflation expectations in the decision to request a loan, To eliminate this situation, we use inflation expectations observed in the 2020 survey – *before* households decided to request a loan (in the subsequent two years), and even before they announced their plans to request a loan in the 2022 survey. With questions about inflation expectations having only been added to the questionnaire in

2022, the response to the question of the 2020 questionnaire was used to capture the heterogeneity of households by inflation expectations. [29]

The descriptive statistics of all variables, as well as the distribution of key continuous variables, including for analysis and adjustments for possible outliers in the data, are provided in Appendix 2.

4. Description of the model

We follow the strategies to estimate the loan application (demand) probability as presented in Magri (2007), Chen, K. C. and Chivakul, M., (2008), and Arango and Cardona-Sosa (2023). In general, this approach is standard and based on probit model estimation.

Suppose each of N households makes a loan request based on the implicit demand function: [30]

$$D_j^* = \alpha + \beta_1{}' X_j + \beta_2 i_j + \varepsilon_j \qquad (1)$$

where: $D_j^*$is the desired demand volume for credit of household j; and $i_j$is the nominal interest rate observed by household j. In practice, this may be the average or minimum interest rate of a set of the available (observable) bank rates. [31] X_j is a set of measurable factors that households consider in making decisions, in addition to the interest rate, including households' inflation expectations, financial inclusion indicators (internet availability to household j, web-based loan request, etc.). Unobservable decision factors are accumulated in variable ε_j. In what follows, it is assumed that the aggregate effect of these unobservable factors relative to the utility of credit, conditionally relative to X_j and i_j has a normal distribution with zero mean and some variation. [32]

[29] dummy = 1 if at least one household member says in response to question M14 'What is your personal greatest concern in the current situation?' (the 2020 questionnaire): 'rising prices for goods and services'. This aids in dividing all households into two groups: those considering price growth harmful and those giving other response options. Unfortunately, this was the best measurement technique at our disposal.

[30] In our case of demand for credit for the past two years, it is 'any credit', while in the case of planned demand, it is unsecured credit (including credit cards). At the same time, loan request decisions as regards some loan types may not be independent. For example, demand for mortgage loans can influence demand for unsecured loans for down payments (usually at least 20% of the mortgage value). This leads to the demand model receiving the demand variable for another loan type. To estimate such models, a good sample with several loan types is needed. Household finances survey data we operate cannot aid in the estimation since they provide a small number of observations for several loan types. Nevertheless, implicitly – through household characteristics and without explicitly including the demand variables related to other loan types – we take into account the chances of some households (with certain characteristics) requesting both the type of loan in question and other types (which are unconsidered). Still, there is no clear division by loan type in this work.

[31] Since we abstract from the demand for a loan from a particular bank and describe the loan decision in terms of *yes* or *no* in principle, this decision should depend on the level of rates in the lending market as a whole (rather than in a particular bank).

[32] As regards the effect of future interest rate expectations on credit demand, we note that interest rates are a cyclical variable: they rise at a time of high inflation and fall when inflation is low. Accordingly, current high rates should assume expectations of lower rates in the future, which should reduce the utility of loan requests.

In practice, therefore, given the availability of data, only a binary fact (intention) of applying for a loan is observed for each household. Thus, there is a binary variable:

$D_j = 1$ if $D_j^* > 0$ (2)

$D_j = 0$ if $D_j^* \leq 0$ (3)

where $D_j = 1$ is household *j* that has requested a loan (or intends to do so).

Further, a standard probit model is estimated for this binary variable as follows:

$$\Pr(D_j = 1|X_j, i_j) = \Pr(D_j^* > 0|X_j, i_j) = \Pr(\varepsilon_j > -(\alpha + \beta_1{}' X_j + \beta_2 i_j)|X_j, i_j) \quad (4)$$

where $\Pr(X < x) = F(x)$ is the integral function of the normal distribution of random value X (its role is played by ε_j) with zero mathematical expectation and a certain variance. Our priority task is to assess the elasticity of demand for credit in relation to the interest rate, that is estimating coefficient β_2. It is also of interest to understand the role of demographic factors such as income, expected income and the level of wealth of individuals in the decision to request a loan.

For the actual demand model (loan requests for the past two years), in order to avoid endogeneity, we ensure the variables that can bring such endogeneity are taken with lags (according to the previous wave of the survey, held in 2020).

To eliminate the problem of endogeneity arising when interest rate offerings reflect unobservable household characteristics (which affect both the bank's rate offering and the potential borrower's desire to apply for a loan), instead of equation 4, we estimate model

$$\Pr(D_j = 1|X_j, \overline{i_l}) = \Pr(D_j^* > 0|X_j, \overline{i_l}) = \Pr(\varepsilon_j > -(\alpha + \beta_1{}' X_j + \beta_2 \overline{i_l})|X_j, \overline{i_l}) \quad (4')$$

where $\overline{i_l}$ is the average interest rate of loans offered by banks in locality l; l is one of the 38 localities (district or regional centres including districts, St Petersburg and Moscow) of the place of residence of household *j* (for details see Section 4.2).

In this case, the interest rates are not specific to a particular borrower, that is, they are exogenous to the borrower's decision to apply for a loan.

The problem of such identification may arise if the ranking of rates reflects not only supply-side but also demand-side factors. That is, banks in a locality can set rates at a certain level due to the nature of demand in this locality as a whole. Specifically, it is natural to assume that the higher the average demand, the higher the average loan rates on offer. In this case, if a negative, rather than positive, correlation is discovered between the rates and demand (loan request probability), it will act as indirect evidence of the dominance of supply-side factors for rate variation by locality.

Current rates in the decision model i_j will therefore reflect not only the effect of the current rate itself but also the combined effect on demand of currently high but expectedly lower rates (conditional expectation of future rates at given current rates). Then, given this cyclic nature of rates, ε_j will not reflect the expectations of future rates, but rather their deviation from the conditional mathematical expectation relative to given actual observed rates. In this context, the assumption that such a deviation is distributed normally with zero mathematical expectation will be justified.

5. Results

The beginning of Section 5.1 presents the resulting estimates of the actual loan application model for (any) loan type in the two years before the survey. Section 5.2 presents the resulting estimates of the loan application model for unsecured loans (including credit cards) for the future (relative to the 2022 survey dates).

5.1 Resulting estimates of the actual loan application model

The actual loan application probability model uses data on facts of loan requests in the two years before the survey. In this context, for the actual demand model (loan requests for the past two years), in order to avoid endogeneity, we ensure there are lags with the variables that can bring such endogeneity (according to the previous wave of the survey held in 2020). Potentially endogenous variables include financial variables (the loan may have increased the size of assets; an education loan may have helped boost education and thus income), as well as the subjective variables related to future expectations, including inflation expectations. For example, the average age of household members is obviously not affected by the fact that the household applied for a loan over the previous two years. There are three ways to measure the explanatory variables over which the fact of applying for a loan has no influence. Such household characteristics can be measured either as of the 2020 or 2022 survey date or as the average for the period between these survey dates. Since the exact date of the household's loan request in the previous two years is unknown, it is more logical to use the average values of such characteristics for the inter-wave period. For example, the age of household members is taken as the average for the period between the survey dates. This was the basic calculation principle. Appendix 3 presents the model estimation results (4') for the model's baseline version: some of the variables potentially affected by demand for credit are measured as of the 2020 survey and others are measured based on the average for the period between the survey dates.

$$\Pr\left(D_j = 1 | X_j, \overline{\iota_l}\right) = \Pr\left(D_j^* > 0 | X_j, \overline{\iota_l}\right) = \Pr\left(\varepsilon_j > -(\alpha + \beta_1{}' X_j + \beta_2 \overline{\iota_l}) | X_j, \overline{\iota_l}\right)$$

Nevertheless, in order to test the results for robustness in Appendix 4, we consider Appendix 3 models, but strip out the measure of inflation expectations and keep only the nominal rates. Calculations were also made for the values of exogenous explanatory variables as of the 2020 survey (ie when all the regressors characterise households as of the 2020 survey), or as of 2022 (ie when only endogenous regressors characterise households as of the 2020 survey). The results are shown in Appendix 5 (exogenous variables as of the 2022 survey) and Appendix 6 (exogenous variables as of the 2020 survey).

Appendices 3–6 present estimated marginal effects for the average regression values. In each case, 11 models were estimated, with the dependent variable being a discrete

variable of the fact of a loan request in the previous two years. In each case, the first model contains a minimum set of regressors commonly used in such studies. In subsequent regressions beginning from the fourth and up to the eleventh, additional factors are added one-by-one to the baseline regression. This one-by-one method helps avoid a strong reduction in sample size caused by the lack of data on a number of variables from some households (since the missing data are different from household to household, data aggregation, ie the simultaneous inclusion of such variables, results in a strong sample reduction).

In Appendix 7, we provide estimates of marginal effects in the 11 models, obtained by sequentially expanding the number of regressors. As a result, the number of observations from 3,733 in the baseline model is reduced to 1,690 in the 11th model. [33] Clearly, in Appendices 3–6 regressions, the alternate addition of variables does not result in the reduction.

An additional calculation is presented in Appendix 8. It is intended to reflect data variation by household locality (location), which is represented by the inclusion of a dummy variable for 37 localities (+one taken as baseline, which is not in the regression to exclude multicollinearity). The model already includes a similar control variable – key in this work – the level of interest rates offered by banks in these 38 localities. The dummy variables for localities measure the effect on demand in this locality relative to all the others. Essentially, interest rates help rank the regions and thus measure the degree of demand orderliness across 38 locations, corresponding to the ranks of rate levels. The results of regression estimation show that interest rates, as a variation ordered at the level of household locality, are no longer statistically significant for the loan demand variation in the case of a random variation (dummy variables for 38 localities). In other words, the unordered variation at the level of household locality explains part of the demand variation and does not retain any meaningful effect on demand for a locality-level ordered variation (aligned with the ranking of rates). While the signs and values of elasticities in relation to the rate remain close to the original ones, the very large standard estimation errors make them statistically insignificant. Note, however, that such large standard errors may result from a small number of observations per locality. Indeed, the average number of households interviewed in the localities was close to 150. Of these, the requirement to observe households for the two survey waves and the unavailability of data for some indicators reduced this number to 70–100 observations.

Additionally, in Appendix 9, we repeat the calculations of 11 models without regard for extreme income values, ie excluding the ‘outliers’ (limiting the monthly income of households in the 2020 survey to the 99% quantile, which corresponds to 114,155 rubles).

In Appendix 10, all the specifications take into account the additional factor of survey month (it proved insignificant and therefore from now onwards these results are ignored). The survey was conducted between May and September 2022. Adjustments for the survey

[33] The reduction in observations in the baseline model from 6,081 to 3,733 households is due, first, to the fact that 20% (1,200) of households were added to the 2022 wave, but were absent from the 2020 wave (the wave is the source of income and financial position data). The rest is the product of incomplete data for a number of households (underfilled indicators of assets or liabilities) In particular, the use of asset size logarithms strips out households whose asset sizes are zero.

month are intended to reflect macroeconomic changes over the period, which could affect responses (their actual demand for loans as of the date of the survey).

Appendices 3–10 do not provide estimates of the probit factors of the model (4'), but rather the marginal effects of these variables (with the values of all other variables being at their average level) on the loan application probability.

Table 1 summarises the results of this estimation. The minimum and maximum point values of marginal effects of 11 models, calculated in different ways, are presented in Appendices 3–8.

Table 1. Minimum and maximum statistically significant marginal effects (point estimation) in average regression values, of 11 models calculated in different ways, decimal quantity (0.01 points = 1%)

Statistically significant values Min and Max by absolute value	Models of Appendix 3: one-by-one addition; the exogenous variables are average values for 2020–2022	Models of Appendix 4: one-by-one addition; the exogenous variables are average values for 2020–2022	Models of Appendix 5: one-by-one addition; the exogenous variables are 2020 values	Models of Appendix 6: one-by-one addition; the exogenous variables are 2022 values	Models of Appendix 7: sequential addition; the exogenous variables are average for 2020–2022.	Models of Appendix 8: models of Appendix 3 with locality dummies
Average loan rates offered by banks	-0.016 -0.022	-0.015 -0.021	-0.016 -0.023	-0.015 -0.019	-0.015 -0.023	Insignificant
Measure of inflation expectations	0.022 0.028	-	-	-	-	-
Logarithm of monthly income of households	0.018 0.036	0.017 0.035	0.020 0.035	0.017 0.020	0.018 0.038	0.022
Logarithm of total liabilities of households	0.004 0.005	0.004 0.005	0.004 0.006	0.004 0.005	0.005 0.006	0.004
Logarithm of total assets of households	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean number of members aged under 18	0.015 0.039	0.015 0.038	0.015 0.038	0.014 0.025	0.015 0.043	0.032
Marital status of household head	Insignificant	Insignificant	Insignificant	0.035 0.047	Insignificant	0.052 0.063
Average age of adult household members	0.009 0.012	0.005 0.012	0.010 0.012	0.009 0.014	0.006 0.010	0.009 0.015
Average age of adult household members squared	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001
Average share of employed household members	0.063 0.115	0.060 0.109	0.060 0.082	0.073 0.101	0.081 0.148	0.079 0.123
Higher educational attainment of at	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant

least one household member						
Willingness to take financial risks	0.035 0.053	0.035 0.053	0.035 0.055	0.036 0.042	0.036 0.051	0.039 0.061
Reside in Southern or North Caucasian Federal District	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Reside in Volga, Urals or Siberian Federal District	0.045 0.058	0.048 0.061	0.050 0.063	0.048 0.060	0.053 0.068	Insignificant
Reside in Far Eastern Federal District	0.113	-0.015 0.100	-0.016 0.122	0.116	Insignificant	Insignificant
Household head's expectations of positive economic developments for next 12 months	-0.053	-0.053	-0.053	-0.058	-0.053	Insignificant
Household head's expectations of negative economic developments for next 12 months	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	-0.031
Propensity to save	-0.039	-0.040	-0.041	-0.030	-0.038 -0.065	-0.045
Expectations of improvements in financial position, average household	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Expectations of deterioration in financial position, average household	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	-0.025
Financial inclusion index, average household	0.094	0.092	0.086	0.100	0.163 0.216	Insignificant
Financial literacy index, average household	0.001	0.001	0.001	0.001	Insignificant	0.001
Financial literacy index of household head	0.001	0.001	0.001	0.001	Insignificant	0.001
City residence	Insignificant	Insignificant	Insignificant	Insignificant	-0.120	Insignificant
Higher educational attainment of household head	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Number of household members	-0.024	-0.022	-0.022	Insignificant	-0.022	-0.021
Effect of interest rate and income interaction	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant

Source: Authors' own calculations.

Table 1 results show that the interest rate offered by banks in a household locality is statistically significant and negatively correlates with the loan application probability, with

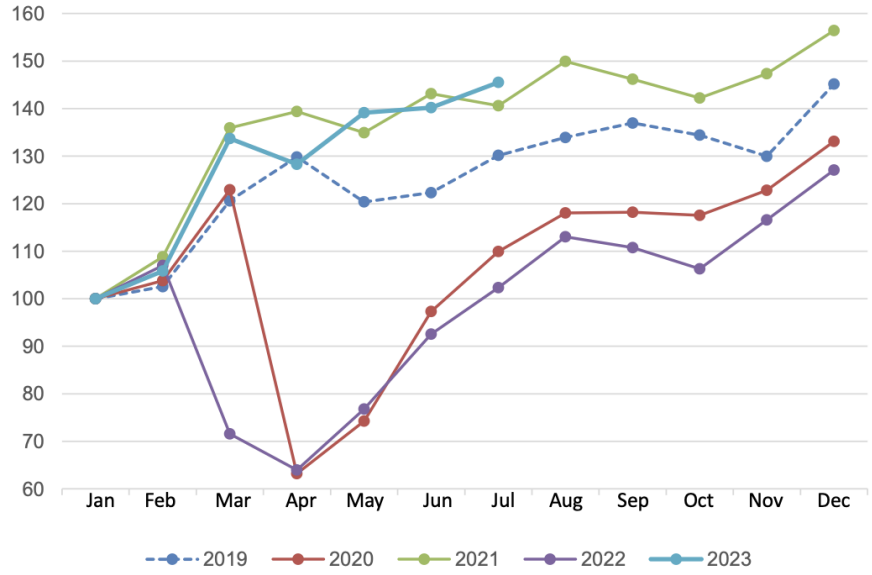
given inflation expectations, but the result is not robust if controls for localities are included. In the models where the interest rate is significant, a 1pp increase in the interest rate from the average level lowers the loan request probability by 1.5–2.3% (0.015–0.023). Therefore, the sensitivity of demand to small changes in the interest rate is very weak. This elasticity obtained in Magri (2009) for Italy is statistically insignificant at all. With the vast majority of loans in the sample being unsecured loans or credit cards, this result can be said to characterise exactly demand for unsecured loans.

By contrast, a significant change in the rate (for example, the profound tightening of monetary policy in 2015 or 2022) has a tangible impact on the probability. Thus, a 10pp rate increase from its average level (from the table of descriptive statistics, Appendix 2, the average level is 11.7% per annum) will reduce the loan request probability by 15–23% (0.15–0.23 in terms of fractions of probability). With the average loan request probability at 0.27, this rate increase reduces the probability by at least half its average level and all the way to the point of a zero probability.

The measure of inflation expectations (households fear of rising prices in the 2020 survey) is statistically significant in certain specifications. A household whose members note a high risk of inflation is more likely to request a loan. However, the effect is economically weak: for a household whose one member at least notes such risks, the probability is only 3% higher compared to a household whose members do not see such risks. In general, it is difficult to reach a clear interpretation of the positive correlation of this measure of inflation expectations with credit demand: this can be attributable to the effect of lower real rates, the effect of expectations for higher real rates (following monetary tightening), as well as fears of a crisis, as long as historically crises in Russia have been related to spikes in inflation (‘it is better to take a loan now than later’).

Accordingly, the interest rate of monetary policy is quite weak in terms of sensitivity of the number of households requesting a loan (ie extensive growth, not growth in the amount of loans) to the interest rate, when the rate change is small. Therefore, for the channel to make a visible impact, a fairly drastic change in interest rates is required. As can be seen from Figure 8, two episodes of strong reduction in loan disbursements over the past five years stand out: one in early 2020 and one in the first quarter of 2022. Both episodes came with unfavourable exchange rate developments, increased volatility in the financial market and growing uncertainty of business conditions. In the course of the latter episode, the Bank of Russia significantly increased the rate. Bank of Russia statistics show an increase in 2022 in rates on loans for 1–3 years from a peak of 13.8% p.a. in December 2021 to 21.3% in April 2022, which is a 7.5pp increase. As follows from Figure 8, loan disbursements over the period declined from the seasonal reading of 120 to 60 (in terms of January disbursements), that is by half. Doubtless, it would be a mistake to attribute all the reduction to the rise in loan rates over the period, given the concurrent impact of many other factors on the side of demand (including those that our model cannot capture) and supply. Adjusted for this, it is important to see that the magnitude of the results is consistent with the resulting estimates.

Figure 8. Disbursements of unsecured loans by year (2019–2023), January of corresponding year = 100



Source: Bank of Russia, authors' calculations.

A number of other variables help statistically significantly explain the loan request variation (over the previous two years), which are as follows (based on results from Table 1):

– Household income, according to the 2020 survey, which increases with a loan request probability over the following two years; 10% growth in income (approximately equal to an increase in the income logarithm) from the average level increases the loan request probability by about 0.3 points in terms of fractional values or by 30%. The economic effect is quite strong.

– The higher level of financial liabilities according to the 2020 survey also increases demand for loans. This may reflect the demand for refinancing of previously taken loans. The marginal effect of a 10% increase in liabilities from the average level is a tenth of the same 10% change in revenues – only about 0.04 points. Therefore, only households with a strong deviation in the level of liabilities from the average level show an economically significant deviation in credit demand.

– Households with a large number of adults have a lower loan request probability (families with adult children), while the presence of children increases the demand for credit. A married head of the household is more likely to apply for a loan.

– The average age of adult members is modelled non-linearly, and its impact is described in detail below.

– The share of employed household members has a positive impact on credit demand. The economic effect is significant: a household with employed members is about 10% more likely to request a loan, relative to a household of unemployed members (all

other things being equal and at the average level, in particular, with the same age characteristics). [34]

– Risk appetite positively correlates with demand for loans: households with a high level of credit risk are more willing to apply for a loan.

– Families residing in the Volga, Urals, and Siberian Federal Districts are marked by higher demand for loans relative to residents in the Central or North Western Federal Districts.

– Expectations of positive economic developments in the country reduce demand for loans. Importantly, we consider expectations according to the 2020 survey and demand between the two surveys, regardless of actual changes over this period.

– The propensity to save, according to the 2020 survey, reduces the loan request probability in the subsequent two years.

– Financial inclusion has positive and economically significant effects: the opportunity to take a loan online or offline adds 10–20% to the loan request probability.

– Financial literacy also increases the loan request probability in the future, but with a low economic significance.

Statistically insignificant factors for loan requests include the fact of city residence (significant only in one specification), the level of education, and an assessment of the future personal financial position. The level of assets (financial and non-financial), according to the 2020 survey, of households with such assets is also not a statistically significant predictor of loan applications.

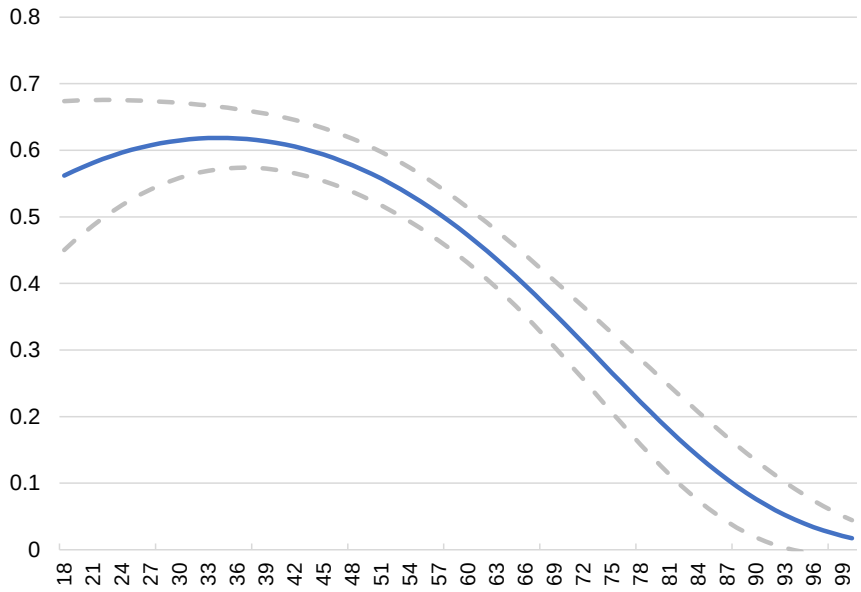
The results are overall consistent with those obtained in the studies of credit demand (loan request probability) for other countries. Chen, K. C. and Chivakul, M. (2008) present a table (Table 12) with international comparisons of estimates obtained in loan application probability studies that are available at the time of writing. The results in terms of age effects are similar to ours. [35] The wealth effect is negative, which is consistent with our estimates bearing out that the effect of assets is not significant; the effect of liabilities is positive. Accordingly, the increase in liabilities means a reduction in net wealth, which increases the likelihood of applying for a loan. In other studies, demand for credit also increases with income growth. The effect of education is either insignificant or positive. Unemployed people are less likely to apply for loans, as in our study.

We also take interest in the elasticity of loan requests to the average age of adult household members. This variable is included in the quadratic expression in the regression equation. The dependence of the probability on age is represented in Figure 9.

[34] Therefore, the inclusion of the age variable makes it possible to control for households' age differences, in particular, for the fact that the oldest households are most likely unemployed. Thus, this variable reflects differences in employment status of households of the average age.

[35] In the specifications that also include this variable in a quadratic representation.

Figure 9. Dependence of loan request probability on average age of adult household members



Source: Authors' own calculations.

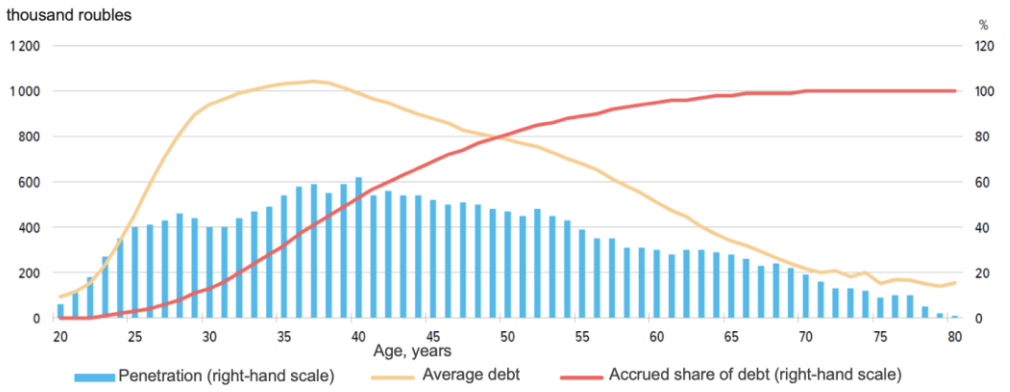
Note: The results are based on regression coefficients whose ultimate effects are presented in Appendix 4 (the Basic Regression column). The probability estimates are based on the average values of independent variables, with the exception of variable average_adults_age_nw and average_adults_age_nw_srt, in which the value average_adults_age_nw changes in increments of one year from 18 to 100. The calculation uses an asymptotic 95% confidence interval (a+/-1.96*std,err). The standard errors are obtained with the delta method.

It follows from Figure 9 that the loan request probability peaks (55–65%) for 35-year-olds and thereafter declines by half by the age of about 70 years. [36]

This temporal profile for the loan request probability is overall aligned with the lending penetration data in Figure 10, see Bank of Russia (2022).

[36] For comparison, Magri finds for Italy that the probability peaks at 30 years for the age of family heads and decreases by half for those aged about 55 years. The earlier peak and earlier decline in demand may be explained by the significant penetration of mortgage loans in Italy (and advanced economies in general). According to Magri (2007), the number of mortgage borrowers in Italy is approximately equal to the number of consumer loan borrowers. Speaking of individuals (not households), in Russia, there were 8 million borrowers with a mortgage or borrowers with both a mortgage and a loan in the second quarter of 2022 year (survey dates) against 34 million borrowers with other types of loans (mostly for consumption purposes).

Figure 10. Lending penetration, average debt, and consumer debt by age group



Age, years
Penetration (right-hand scale) Average debt Accrued share of debt (right-hand scale)
Source: Bank of Russia (2022)

Credit bureau data on actual loan disbursements (rather than applications) show that the penetration of lending is about 60% at its peak and coincides with the range of 35–40 years. In the loan application model, the peak of probability is similar at 60% for the average values of the other variables.

5.2 Resulting estimates of the planned loan application model

It is of great interest to analyse the plans to apply for a loan in the conditions of high uncertainty and structural shifts of 2022 for the reason that uncertainty can change the usual dependencies of decision-making in consumption and savings.

The model estimation for the planned application for consumer loans, including credit cards, according to the 2022 survey, is presented in Table 2. [37]

Table 2. Estimated marginal effects: models of future demand as a dependent variable, decimal quantity (0.01 points = 1%)

Variable	Baseline regression	+ risk appetite	+ macroregion of residence	+ expectations as to economic outlook	+ propensity to save	+ expectations of change in financial position	+ financial inclusion
	(1)	(2)	(3)	(4)	(4.1)	(4.2)	(5)
interest_rate	**-0.006****	**-0.006*****	**-0.006*****	**-0.006****	**-0.008*****	**-0.006****	**-0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)

[37] Appendix 11 shows the results excluding inflation expectations. The results in terms of rate elasticity are close.

ln_money_inc_22	0.009***	0.007**	0.009**	0.008**	0.010**	0.010**	0.008
	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.006)
ln_total_liabilities_22	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_22	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_22	-0.006*	-0.004	-0.004	-0.004	-0.005	-0.004	-0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.005)
married_22	0.006	0.004	0.004	0.007	0.012*	0.005	0.010
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.008)
average_adults_age_22	0.001	0.001	0.001	0.001	0.001	0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
average_adults_age_22_sqrt	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_22	0.011	0.015**	0.016**	0.015*	0.015*	0.018**	0.012
	(0.008)	(0.007)	(0.007)	(0.008)	(0.009)	(0.008)	(0.012)
adults_high_edu_dummy_22	-0.003	-0.002	-0.002	-0.002	-0.001	-0.003	0.002
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.007)
ie_hh20	0.013**	0.014***	0.014***	0.015***	0.015**	0.015***	0.024***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.008)
risk_22		0.026***	0.025***	0.026***	0.027***	0.024***	0.033***
		(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.010)
south_ccs,bigger_region_id			0.009	0.011	0.017*	0.011	0.014
			(0.008)	(0.008)	(0.010)	(0.009)	(0.012)
priv_ural_sib,bigger_region_id			0.010*	0.012**	0.015**	0.011*	0.017**
			(0.006)	(0.006)	(0.006)	(0.006)	(0.008)
far_east,bigger_region_id			-0.013*	-0.012*	-0.011	-0.014**	
			(0.006)	(0.007)	(0.007)	(0.006)	
1,macro_oneyear_20_l22				-0.007	-0.011		
				(0.010)	(0.010)		
-1,macro_oneyear_20_l22				-0.000	-0.002		
				(0.006)	(0.006)		
1,pro_save_20_l22					-0.013**		
					(0.006)		
1,wealth_exp_fcr_20_hh22						-0.001	
						(0.007)	
2,wealth_exp_fcr_20_hh22						0.008	
						(0.006)	
fin_acs_22							0.042**
							(0.019)
Observations	3,740	3,740	3,740	3,467	3,090	3,416	2,073
Wald Chi2	66.22	77.40	80.05	79.28	132.9	77.52	50.42
Prob>Chi2	6.36e-10	0	6.83e-11	5.14e-10	0	1.05e-09	1.03e-05
Pseudo R2	0.0799	0.0996	0.109	0.115	0.141	0.110	0.0942
AIC	784.4	770	768.7	735.8	669.6	744.5	574.1
BIC	859.1	851	868.3	846.5	784.3	854.9	664.3

Table 2 (continued)

Variable	+ financial literacy, average household	+ financial literacy of head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
	(6)	(7)	(8)	(9)	(10)	(11)

interest_rate	**-0.005****	**-0.006****	**-0.005****	**-0.006*****	**-0.006*****	**-0.004***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
ln_money_inc_22	0.008**	0.009**	0.008**	0.008**	0.006*	0.030***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.011)
ln_total_liabilities_22	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_22	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_22	-0.004	-0.004	-0.004	-0.003	-0.007	-0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
married_22	0.004	0.003	0.005	0.003	0.002	0.002
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
average_adults_age_22	0.001	0.001	0.001	0.001	0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
average_adults_age_22_sqrt	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_22	0.013*	0.014*	0.015**	0.016**	0.019**	0.013*
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)
adults_high_edu_dummy_22	-0.006	-0.005	-0.003	0.011	-0.002	-0.002
	(0.005)	(0.005)	(0.005)	(0.007)	(0.005)	(0.005)
ie_hh20	0.015***	0.015***	0.014***	0.013**	0.013***	0.013***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
risk_22	0.025***	0.026***	0.025***	0.025***	0.024***	0.026***
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
south_ccs,bigger_region_id	0.011	0.014	0.012	0.009	0.008	0.008
	(0.008)	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)
priv_ural_sib,bigger_region_id	0.010*	0.010*	0.010*	0.009	0.009	0.009
	(0.006)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)
far_east,bigger_region_id	-0.012*	-0.013**	-0.012*	-0.013**	-0.013**	-0.013**
	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)
fin_litrcy_22	0.000***					
	(0.000)					
fin_litrcy_leader_22		0.000***				
		(0.000)				
set_type_22			0.005			
			(0.008)			
leader_high_edu_dummy_22				-0.018**		
				(0.009)		
members_22					0.003	
					(0.004)	
inter_inrate_income_22						0.000
						(0.000)
Observations	3,740	3,740	3,740	3,740	3,740	3,740
Wald Chi2	79.87	80.59	97.23	84.15	80.10	76.83
Prob>Chi2	1.75e-10	1.30e-10	0	0	1.59e-10	6.18e-10
Pseudo R2	0.119	0.127	0.111	0.115	0.110	0.115
AIC	762.4	755.8	768.8	765.2	769.5	765
BIC	868.2	861.6	874.7	871	875.3	870.9

Source: Authors' own calculations.

*Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values: *** - p<0.1, ** - p<0.5, * - p <0.1*

It follows from the analysis of results that the elasticity of planned demand in relation to interest rates, while remaining statistically significant and negative, is economically very weak. The finding may partly be attributable to the fact that, unlike for past demand where consumer loans cannot be distinguished, the model in this case is built only for demand

for consumer loans (including credit cards). These loans can be marked by lower elasticity in relation to the rate. This is further explained by the fact that planned loan demand was shown by a mere 3% of the households surveyed, which means there may be few local-level observations for good identification.

It is notable that the measure of inflation expectations according to the 2020 survey positively correlates with planned loan requests.

Among other statistically significant loan application factors are:

– Household income. However, the point marginal effect by absolute value is three times weaker than for loan applications for the past two years.

– Households' financial liabilities. Their growth increases the loan request probability, but the economic effect is very weak.

– The proportion of employed household members that has a positive impact on planned applications.

– Households expecting improvements in the economic situation over the next two years are less likely to apply for loans. The same dependence was observed for loan applications in the previous two years.

– Also, households expecting a deterioration in their personal financial situation are more likely to apply for loans.

– Planned applications in some specifications demonstrate a non-linear quadratic age relationship and thus confirm the life cycle hypothesis.

– Risk attitude statistically significantly increases the loan request probability in all specifications.

– More financially literate households tend to more willingly plan to request loans in the future.

– Financial inclusion, as in the case of demand in the past, leads to more frequent plans to apply for loans in the future.

At the same time, compared to the demand for credit between summer 2020 and summer 2022, we do not find any critical differences in the role of certain factors, although the proportion of those planning to request loans is extremely small. [38]

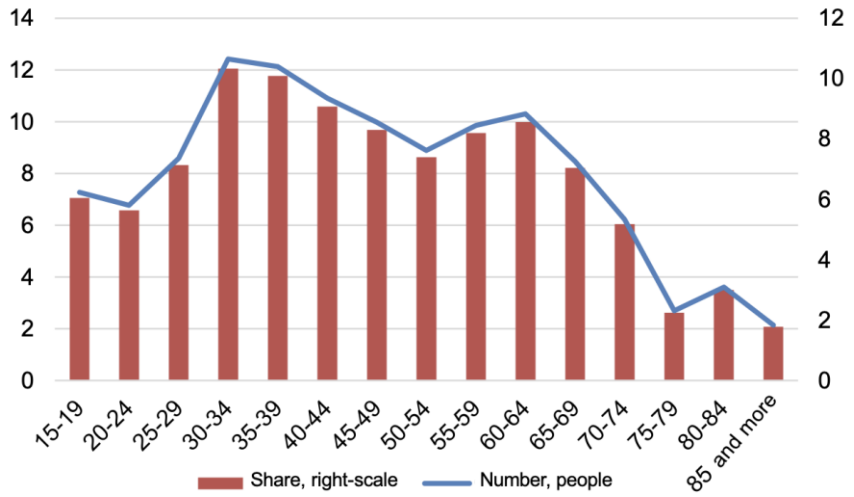
The key finding here is that households expecting a deterioration in the economy and their financial position are more likely to plan on obtaining a loan in the future than more optimistic households. On the one hand, this finding confirms the consumption smoothing role of credit that shows up over time and at least at the loan application stage (banks may opt to refuse such households). On the other hand, this is a potential source of financial stability risk accumulation. Households may view unsecured loans, rather than a way to temporarily compensate for lost income (ie a temporary increase in the debt burden), as a way to maintain a minimal acceptable standard of living. In a deteriorating financial situation, such a high debt burden may be long-lasting.

[38] For another comparison, we made a calculation not for the planned consumer loan requests in the right side of the model, but for total planned loan requests (all types of loans). Appendix 12 shows the results for planned demand for *all* loans, not only consumer loans. The results – in terms of their point estimates and significance – are overall close to those in Table 2. In addition, the amount of liabilities and the amount of assets are statistically significant.

6. Scenario forecast of the number of households generating demand for loans

Based on the estimation of models for actual loan demand, it is possible to estimate the number of loan-requesting households based on actual age structure data for the Russian population. To calculate the mathematical expectation of the number of loan applications, we used detailed data on the age distribution of the female and male population aged 15+ as of 1 January 2021 – Figure 11.

Figure 11. Russian population by age group, 1 January 2021



Source: Demographic Yearbook of Russia for 2021, Rosstat and authors' own calculations.

Thereafter, the average probability of applying for a loan was calculated for each age interval, in which the average age of adult household members was within the corresponding interval. This was followed by the calculation of the mathematical expectation of the number of households showing demand for credit in the specified age group. We operated the binomial distribution formula (as if each household was asked, independently of others, if they had applied for a loan, with the answer being 'yes' (= 1) or 'no' (= 0)): [39]

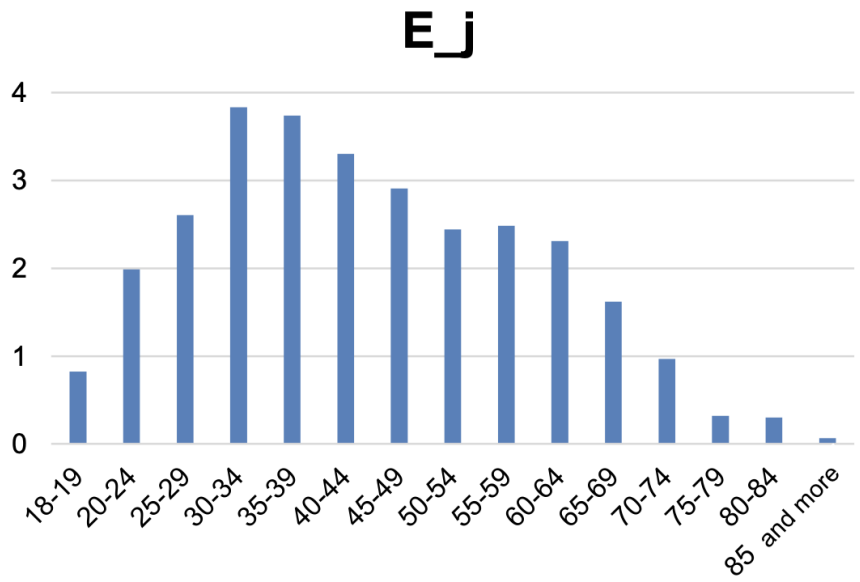
$$E_{N_j}^{j} = \bar{p}_j N_j$$

where: $E_{N_j}^{j}$ – the mathematical expectation of the number of households showing demand for credit in the *j*-th age group, $\bar{p}_j$ is the average for the j-th group's loan request probability, and N_j is the number of households in the j-th age group in the general

[39] Taking into account that Rosstat's data cover the first group of 15–19 years and the average age of adult household members cannot, according to the survey, be less than 18 years, our calculations assumed the number of the age group of 18–19 years to total 2/5 of the age group of 15–19,

population. [40] N_j is calculated from the population in this age group divided by the average number of household members aged 18+ according to the survey. The average number of adult household members according to the survey was approximately 2. The calculations are presented in Figure 12.

Figure 12. Mathematical expectation of households showing demand for credit in j-th age group, millions of households



Source: Authors' own calculations.

Total demand for loans for all age groups is 29 million households, according to our calculations. For comparison, in the second quarter of 2022, the number of individual bank borrowers (not households) is 42 million people, according to the Bank of Russia (2022). For comparison, it is important to know not only the average number of adult household members, but also the average penetration of credit for households, ie how many household members showed demand for loans when such demand is presented by the whole household. It turns out that a household applying for a loan leads to credit eventually arising in about one and a half members of such households.

The scenario calculations which follow should answer the following question: how will expected demographic changes over the horizon until 2035 affect the mathematical expectation of the number of households applying for loans?

The expected demographic changes are understood to be the two versions of Rosstat's forecast for the population and its age structure up to 2035, released by Rosstat in March 2020 and refined to account for actual statistics for 2020–2021. We considered the 'mid-point forecast', which assumes a 2.1% decline in the population by 2036 on 2020. Concurrently, the proportion of people younger than the working age drops by 4.3pp from

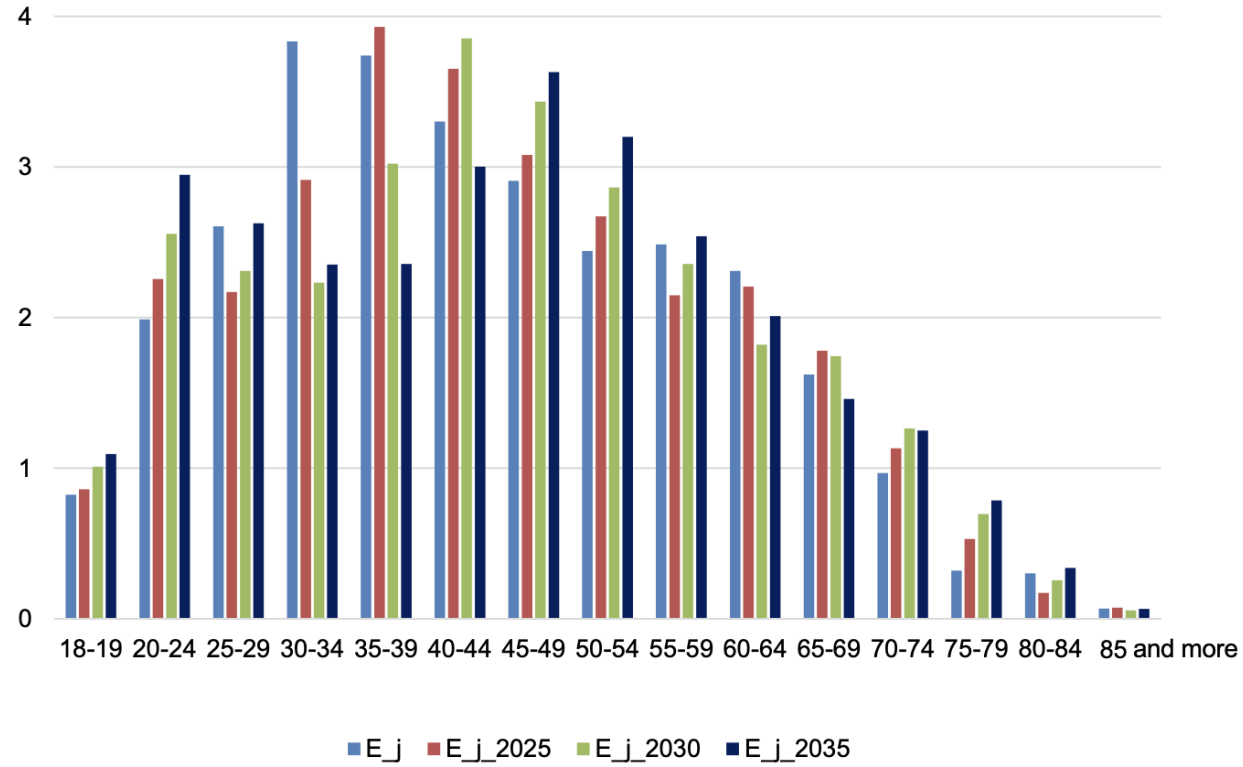
[40] At the same time, we assume that the loan request probability for the sample data and for the general population for individual ages remains the same. That is, the switch from the sample data to the general population data does not affect the estimated loan request probability.

18.7% to 14.3%, and that of those past the working age grows by 3.6pp to 29%. At the same time, the population of the ages covered by the survey (18+ years) grows by 4 million people.

The calculations are based on the baseline model coefficients; its marginal effects are presented in Appendix 4.

The results of the calculations for the forecast (scenario) rather than for the actual population size and structure are presented in Figure 13.

Figure 13. Estimated number of households applying for a loan in each age group (in previous two years) for 2021, 2025, 2030 and 2035



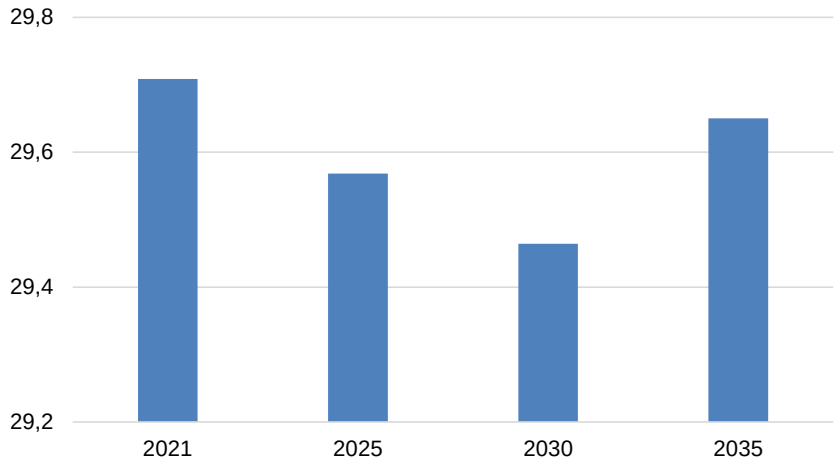
Source: Authors' own calculations.

It follows from Figure 13 that the age group 30–44 will register a reduction in demand (people within this group are now 18–32 years old), as will the group 60-69 (who are now 48–57 years old). Conversely, demand will grow in the group 18–25 (who are now 6–13 years old), in households with an average age of 45–54 (now 33–42 years old) and in households of 70+ years of age.

The overall inconsistency of the age structure of credit products on the supply side (mortgage loans, education loans, etc.) with the age structure on the demand side can become a source of imbalances in some segments of the credit market.

The cumulative changes by age group are presented in Figure 14.

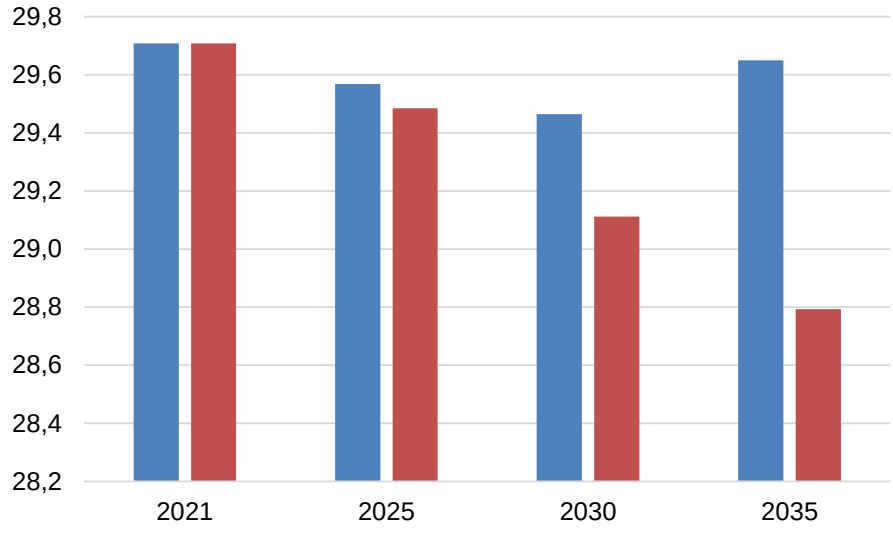
Figure 14. Estimated number of households requesting loans (in previous two years) for 2021, 2025, 2030 and 2035



Source: Authors' own calculations.

The expected number of households showing demand for credit (in two years) will change little if at all by 2036. To estimate the contribution of a changing age structure, the demand for loans was calculated given a constant population size. As the results in Figure 15 show, a change in the age structure (red bars) is a significant factor in demand reduction: when the total number of households is constant, demand falls by 800,000 households by 2036 on the back of the change in demographic structure.

Figure 15. Estimated number of households requesting loans (in previous two years) for 2021, 2025, 2030 and 2035 (blue bars) and estimated number of households requesting loans when total population size is level with 2021 but adjusted for projected structural shifts (red bars).



Source: Authors' own calculations.

Accordingly, structural changes will reduce the number of loan-requesting households, which is, however, set to be offset by growth in the population aged 18+.

The presented scenario calculation also demonstrates one of the possible areas of applied use of the model.

Conclusion

Russian surveys of consumer finances provide data that enable analysis of households' loan requests. Given that loan request decisions are made not at the individual but household level, these data – unlike those usually available to banks or credit bureaus – contain reliable information to explore demand for credit and the elasticity of demand in relation to the interest rate.

This work presents an estimation of the decision-making model for households requesting loans. [41] The key focus is to estimate the elasticity of the loan request probability in relation to the interest rate, accounting for inflation expectations. The main difficulty in understanding the role of the interest rate is the need to distinguish the interest rate variation, which is exogenous to credit demand. In this work, this is achieved through the use of interest rates on banks' consumer loans available in the place of residence of households (according to *banki.ru*). Such rates do not depend on borrower characteristics. Accordingly, their variation from one location to another reflects the variation on the credit supply side. The resulting estimates show that the loan request probability is lower in the place of residence of households marked with higher rates, other things being equal. In terms of economic significance, the elasticity of the probability is weak, that is, as the estimates show, the interest channel of monetary policy for minor rate changes is weak. For the channel to make a visible impact, a drastic change in interest rates is required. This can be attributed to the fact that the sample mainly includes consumer loans – already with rather high rates – for which an additional rate increase of 1pp, on a relative basis, is insignificant.

Concerns over high inflation correlate positively with loan requests (both for two years before the survey and in the future).

The results for the loan request probability model bear out the value and economic importance of the following characteristics: income (10% growth from the average level leads to a 0.3pp increase in the probability), employment status, children under 18 years of age, risk appetite, and financial inclusion. The average age of adult household members, estimated in a non-linear way, confirms the dependence that is specific to the life cycle hypothesis and that the literature has previously explored.

[41] Demand for loans was measured based on responses to two questions in the individual questionnaire. Question C1.1 establishes the fact of requesting a loan in the past (in the two years before the last survey wave): 'Let me ask you a few questions about loans. Have you personally applied for a loan in the last two years?' The second question (C1.26) indicates the intention to apply for a loan in the future: 'Are you currently thinking about taking out a loan?', which is complemented with Question C1.27 ('What type of loan do you intend to take out?') to distinguish between demand for a *consumer loan including an emergency loan* or a *credit card*.

The following attributes were of low economic significance but statistically significant: a rise in liabilities triggering an increase in the loan request probability and the level of financial literacy (measured on the basis of survey data by the authors) which, when growing, also increases the probability.

The significance of non-financial assets (mainly real estate) as an indicator was not found. This probably reflects the fact that Russian households making an unsecured loan application do not consider such assets as a factor (potential collateral). Statistically insignificant factors for loan requests include the fact of city residence (significant only in one specification), the level of education, and an assessment of the future personal financial position. Overall, the results match the results obtained in the studies of demand for loans (the loan request probability) for other countries.

We use the resulting model for scenario analysis of the expected number of households applying for loans (in a two-year timeframe) up to 2035.

What is notable for planned demand, as of the survey time, for unsecured credit is that households expecting a deterioration in both the economy and their financial position are more likely to plan on a loan in the future than more optimistic households. On the one hand, this finding confirms the consumption smoothing role of credit that shows up over time and at least at the loan application stage (banks may opt to refuse such households). On the other hand, this is a potential source of financial stability risk accumulation.

At the next stage of the study, we use additional information from the All-Russian Survey of Consumer Finances relating to banks' rejections of loans offered at higher rates than households expected. The survey also contains information on actual loan disbursements to households over the past two years. [42] These actual data are the product of a multi-step market interaction between supply- and demand-side players, intended to strike a balance.

Two circumstances complicate the estimation of the actual loan application model and the elasticity of actual demand in relation to the rate, based on available data on actual disbursements of consumer loans and their actual interest rates.

The first one is the non-randomness of actual data: the sampling of households intending to request loans is not random, and neither are the ensuing loan approvals or rejections by banks. Furthermore, it may be a non-random decision when the bank offers a higher rate than the household expected (or limit the amount of the loan it offers). The household thereafter decides to accept or reject the bank's offer. This is how the selectivity of sampling creates bias. The literature proposes to solve this problem by estimating a two-step Heckman model (there can be more steps depending on the number of sampling stages). In this area, our work relies on Cox and Jappelli (1993), Duca and Rosenthal (1993), Magri, S. (2007), Crook (2001), Brown, Garino and Taylor (2013), Chen and Chivakul (2008), Arango and Cardona-Sosa (2023) (based on credit register data), and Pastrapa and Apostolopoulos (2015).

The second complicating circumstance is the endogeneity of interest rates. Actual rates and volumes of loans are the product of the supply and demand interaction. To address this problem, the method of instrumental variables is used, ie the search for

[42] Including information about loan maturity, purpose and monthly payments, which could be used to indirectly infer loan rates.

interest rate determinants that do not depend on the characteristics of a particular household. Most often, these are the characteristics of the banking system in the area of residence of households.

Bibliography

Arango, L. E., and Cardona-Sosa, L. (2023). Consumer credit in an emerging economy: Demand, supply, and liquidity restrictions. Emerging Markets Review, 100949

Attanasio, O. P., Koujianou Goldberg, P., and Kyriazidou, E. (2008). Credit constraints in the market for consumer durables: Evidence from micro data on car loans. International Economic Review, 49(2), 401–436.

Bertola, G., Disney, R., and Grant, C. (2006). The economics of consumer credit demand and supply, in: Bertola, G., Disney, R., and Grant, C. (Eds.). The economics of consumer credit (pp. 1–26), Cambridge, MA: MIT Press.

Brown, S., Garino, G., and Taylor, K. (2013). Household debt and attitudes toward risk. Review of Income and Wealth, 59(2), 283–304.

Chen, K. C., and Chivakul, M. (2008). What Drives Household Borrowing and Credit Constraints? Evidence from Bosnia and Herzegovina. IMF Working Papers, 2008(202).

Cox, D., and Jappelli, T. (1993). The Effect of Borrowing Constraints on Consumer Liabilities. Journal of Money, Credit and Banking, Vol. 5, No. 2, 197–213.

Crook, J. (2001). 'The Demand for Household Debt in the USA: Evidence from the 1995 Survey of Consumer Finance', Applied Financial Economics, 11, 83–91.

Duca, J. V., and Rosenthal, S. S. (1993). Borrowing constraints, household debt, and racial discrimination in loan markets. Journal of Financial intermediation, 3(1), 77–103.

Gafarov, B., Gong, T., and Hilscher, J. (2023). Secular rise and pro-cyclical variation in markups: Evidence from US grocery stores. Available at SSRN 4442020.

Hausman, J. A. (1996). 'Valuation of new goods under perfect and imperfect competition', in: The economics of new goods. University of Chicago Press, 207–248.

Karlan, D. S., and Zinman, J. (2005). Elasticities of demand for consumer credit. Yale University Economic Growth Center Discussion Paper (926).

Karlan, D., and Zinman, J. (2019). Long-run price elasticities of demand for credit: evidence from a countrywide field experiment in Mexico. The Review of Economic Studies, 86(4), 1704–1746.

Lukas, M. (2017). Estimating interest rate elasticities in consumer credit. Economics Letters, 156, 155–158.

Magri, S. (2007). Italian households' debt: the participation to the debt market and the size of the loan. Empirical Economics, 33(3), 401–426.

Pastrapa, E., and Apostolopoulos, C. (2015). Estimating determinants of borrowing: Evidence from Greece. Journal of Family and Economic Issues, 36(2), 210-223.

Artemova, M., Mamedli, M., and Sinyakov, A. Regional heterogeneity of household lending based on the findings of the household finance survey: regional features and potential risks. Analytical Note of the Department of Research and Forecasting, Bank of Russia, 2018.

Bank of Russia (2021). Analysis of Russian households' debt burden in 2020 Q2–Q3 based on credit bureaus' data.

Bank of Russia (2022). Analysis of Retail Lending Trends Based on Credit Bureaus' Data, 2022 H1.

Bank of Russia (2022). Presentation 'All-Russian Survey of Consumer Finances, 2022'

Бессонова Е. В., Цветкова А. Н. (2023Б). Финансовое поведение домохозяйств в период пандемии. Bessonova, E. V., and Tsvetkova, A. N. (2023B). Financial behaviour of households during the pandemic period [in Russian]. 2023;(8):123-146.

Бессонова, Е., Цветкова, А. (2022). Финансовое поведение домохозяйств в пандемию. Аналитическая записка Департамента исследований и прогнозирования, Банк России, 2022. Bessonova, E., and Tsvetkova, A. (2022). Financial behaviour of households during the pandemic. Analytical Note of the Department of Research and Forecasting, Bank of Russia, 2022 [in Russian].

Бессонова, Е., Цветкова, А. (2023А). Финансы российских домохозяйств в 2022 году, Аналитическая записка Департамента исследований и прогнозирования, Банк России, 2023. Bessonova, E. and Tsvetkova, A. (2023A). Russian households' finances in 2022 . Analytical Note of the Department of Research and Forecasting, Bank of Russia, 2023 [In Russian].

Мамедли, М., Синяков, А. (2018) Финансы домохозяйств в России: шоки дохода и сглаживание потребления, Вопросы экономики, № 5, 2018. Mamedli, M., and Sinyakov, A. (2018). Household Finance in Russia: income shocks and consumption smoothing. Voprosy Ekonomiki No. 5, 2018 [in Russian].

Мамедли, М., Синяков, А. (2017) Потребительское кредитование в России: перспективы и риски на основе обследований финансов домашних хозяйств, Аналитическая записка Департамента исследований и прогнозирования, Банк России, 2017. Mamedli, M., and Sinyakov, A. (2017). Regional heterogeneity of household lending based on the findings of the household finance survey: regional features and potential risks. Analytical Note of the Department of Research and Forecasting, Bank of Russia, 2017 [in Russian].

Мишура, А. В. Спрос на жилищные кредиты и процентные ставки в регионах России, Вопросы экономики, 2021;(4):135-156. Mishura, A. V. Demand for housing loans and interest rates in the regions of Russia. Voprosy Ekonomiki, 2021; (4): 135-156 [in Russian].

Сабельникова, Е. (2017). Выявление детерминант спроса населения на кредиты в России (на базе лонгитюдного обследования домохозяйств RLMS-HSE). Sabelnikova, E. (2017) Identifying the determinants of household demand for loans in Russia (based on the RLMS-HSE longitudinal survey of consumer finances) [in Russian].

Sinyakov, A., and Ushakova, Yu. Two Russian credit booms and current expansion of mortgage lending: lessons for policymaking. Analytical Note of the Department of Research and Forecasting, Bank of Russia, 2018.

Tishin, A. The impact of demography on the development of the financial sector in the Russian Federation. Analytical Note of the Department of Research and Forecasting, Bank of Russia, 2020 [in Russian].

APPENDIX 1

Description of variables

Variable	Description	Source	Unit
binar_demand_hh_corr2dsti	Fact of requesting a loan for the past two years	Survey of Consumer Finances 2022	dummy = 1 if at least one member has applied for a loan in the past two years, or a change in DSTI>0 if this is not known; 0 if nobody in the household has applied and DSTI=0
fut_credit_demand_consume	Intention to take a loan at the time of the survey	Survey of Consumer Finances 2022	when at least one household member answered in the affirmative to the question 'Are you currently thinking of taking a loan?' and when the answer is 'consumer loan including an emergency loan' or 'credit card' to the question 'What type of loan are you thinking of taking?'. Other response options include: 'mortgage loan', 'construction loan', 'repair loan', 'auto loan', 'education loan', 'business development loan', and 'microloan'.
Explanatory variables			
interest_rate	Average rate of offered unsecured loans (except for auto loans) in the household locality	Banki.ru online services	Interest, p.a.
ie_hh20	Proxy for inflation expectations in the 2020 survey	Survey of Consumer Finances 2020	dummy = 1 if at least one household member answers 'RISING PRICES FOR GOODS AND SERVICES' to question M14 ('What is your personal greatest concern in the current situation?') in the 2020 questionnaire.
ln_money_inc_20	Logarithm of monthly income of households at the time of the 2020 survey	Survey of Consumer Finances 2020	Logarithm
ln_total_liabilities_20	Logarithm of total liabilities of households at the time of the 2020 survey	Survey of Consumer Finances 2020	Logarithm

ln_total_assets_20	Logarithm of total assets of households at the time of the 2020 survey	Survey of Consumer Finances 2020	Logarithm
children_20	Number of household members aged under 18 at the time of the survey in 2020	Survey of Consumer Finances 2020	Number of people
children_22	Number of household members aged under 18 at the time of the 2022 survey	Survey of Consumer Finances 2022	Number of people
children_20_22	Average number of household members aged under 18, calculated according to the 2020 and 2022 surveys	Survey of Consumer Finances, 2020 and 2022	Number of people
married_20	Marital status of the household head at the time of the 2020 survey	Survey of Consumer Finances 2020	dummy = 1 if the head is married
married_22	Marital status of the household head at the time of the 2022 survey	Survey of Consumer Finances 2022	dummy = 1 if the head is married
average_adults_age_20	Average age of adult household members at the time of the 2020 survey	Survey of Consumer Finances 2020	Years
average_adults_age_22	Average age of adult household members at the time of the 2022 survey	Survey of Consumer Finances 2022	Years
average_adults_age_20_22	Average age of adult household members, calculated on the basis of the 2020 and 2022 surveys	Survey of Consumer Finances, 2020 and 2022	Years
average_adults_age_20_sqrt	Average age of adult members households squared at the time of the 2020 survey	Survey of Consumer Finances 2020	Number of years squared

average_adults_age_22_sqrt	Average age of adult members households squared at the time of the 2022 survey	Survey of Consumer Finances 2022	Number of years squared
average_adults_age_20_22_sqrt	Average age of adult members households squared, calculated according to the survey of 2020 and 2022	Survey of Consumer Finances, 2020 and 2022	Number of years squared
share_of_employed_20	Share of employed household members at the time of the survey in 2020	Survey of Consumer Finances 2020	Share between 0 and 1
share_of_employed_22	Share of employed household members at the time of the 2022 survey	Survey of Consumer Finances 2022	Share between 0 and 1
share_of_employed_20_22	Average share of employed household members, calculated according to 2020–2022 surveys	Survey of Consumer Finances, 2020 and 2022	Share between 0 and 1
adults_high_edu_dummy_22	At least one household member has higher educational attainment at the time of the 2022 survey	Survey of Consumer Finances 2022	dummy = 1 if at least one household member has higher educational attainment
risk_20	Willingness to take significant financial risks (of at least one household member) as of time of the 2020 survey	Survey of Consumer Finances 2020	dummy = 1 if at least one member chose 'I am ready to assume significant financial risks to make a high profit' to question T11
risk_22	Willingness to take significant financial risks (of at least one household member) as of time of the 2022 survey	Survey of Consumer Finances 2022	dummy = 1 if at least one member chose 'I am ready to assume significant financial risks to make a high profit' to question T11
central_ nw. bigger_region_id	Reside in the Central or North Western Federal District	Survey of Consumer Finances 2022	dummy = 1 if the household resides in the Southern or North Caucasian Federal District
south_ ccs.bigger_region_id	Reside in the Southern Or North Caucasian Federal District	Survey of Consumer Finances 2022	dummy = 1 if the household resides in the Southern or North Caucasian Federal District

priv_ural_sib.bigger_region_id	Reside in the Volga Urals or Siberian Federal District	Survey of Consumer Finances 2022	dummy= 1 if the household resides in the Volga Urals or Siberian Federal District
far_east.bigger_region_id	Reside in the Far Eastern Federal District	Survey of Consumer Finances 2022	dummy= 1 if the household resides in the Far Eastern Federal District
1.macro_oneyear_20_l20	Household head's expectations for a good economic situation in the next 12 months (in the 2020 survey) at the time of the 2020 survey	Survey of Consumer Finances 2020	dummy = 1 if the household head answers 'good' to question Y10
0.macro_oneyear_20_l20	Household head's expectations for neither a good nor bad economic situation in the country in the next 12 months (in the 2020 survey) at the time of the 2020 survey	Survey of Consumer Finances 2020	dummy = 1 if the household head chooses 'neither' in question Y10
-1.macro_ oneyear_20_l20	Household head's expectations for a bad economic situation in the country in the next 12 months (in the 2020 survey) at the time of the 2020 survey	Survey of Consumer Finances 2020	dummy = 1 if the household head chooses 'bad' in question Y10
1.macro_ oneyear_20_l22	Household head's expectations for a good economic situation in the next 12 months of the household head (in the 2022 survey) at the time of the 2020 survey	Survey of Consumer Finances, 2020 and 2022	dummy = 1 if the household head answers 'good' to question Y10
0.macro_ oneyear_20_l22	Household head's expectations for neither a good nor bad economic situation in the country in the next 12 months (in the 2022 survey) at the time of the 2020 survey	Survey of Consumer Finances, 2020 and 2022	dummy = 1 if the household head chooses 'neither' in question Y10
-1.macro_ oneyear_20_l22	Household head's expectations for a bad economic situation in the country in the next 12 months (in the 2022 survey) at the time of the 2020 survey	Survey of Consumer Finances, 2020 and 2022	dummy = 1 if the household head chooses 'bad' in question Y10
pro_save_20_l20	Household head's propensity to save (in the 2020 survey) at the time of the 2020 survey	Survey of Consumer Finances 2020	dummy = 1 if the household head of chooses 'save money' in question M19

pro_save_20_l22	Household head’s propensity to save (in the 2022 survey) at the time of the 2020 survey	Survey of Consumer Finances	dummy = 1 if the household head chooses 'save money' in question M19
1.wealth_exp_fcr_20_hh20	Expectations for improvements in the financial position, average household, at the time of the 2020 survey (composition of household at the time of the 2020 survey)	Survey of Consumer Finances 2020	dummy= 1 if the household on average expects improvements in the financial position (question Y12)
0.wealth_exp_fcr_20_ hh20	Expectations for no improvements in the financial position of the household at the time of the 2020 survey (composition of household as of the 2020 survey)	Survey of Consumer Finances 2020	dummy= 1 if the household on average expects the financial position to remain unchanged (question Y12)
-1.wealth_exp_fcr_20_ hh20	Expectations for deterioration in the financial position, average household at the time of the 2020 survey (composition of household as of the 2020 survey)	Survey of Consumer Finances 2020	dummy= 1 if the household on average expects deterioration in the financial position (question Y12)
1.wealth_exp_fcr_20_ hh22	Expectations for improvements in the financial position, average household, at the time of the 2020 survey (composition of household as of the 2020 survey)	Survey of Consumer Finances, 2020 and 2022	dummy= 1 if the household on average expects improvements in the financial position (question Y12)
0.wealth_exp_fcr_20_ hh22	Expectations for no change in the financial position at the time of the 2020 survey (composition of household as of the 2022 survey)	Survey of Consumer Finances, 2020 and 2022	dummy= 1 if the household on average expects the financial position to remain unchanged (question Y12)
-1.wealth_exp_fcr_20_ hh22	Expectations for deterioration in the financial position, average household, at the time of the 2022 survey (composition of household at the time of the 2020 survey)	Survey of Consumer Finances, 2020 and 2022	dummy= 1 if the household on average expects deterioration in the financial position (question Y12)
fin_acs_22	Financial inclusion index, average household, at the time of the 2022 survey	Survey of Consumer Finances 2022	coefficient from 0 to 1, where 0 is the lack of financial inclusion, 1 is high financial inclusion
fin_litrcy_22	Financial literacy index, average household, at the time of the 2022 survey	Survey of Consumer Finances 2022	Percentage points

fin_litrcy_leader_22	Household head's financial literacy index at the time of the 2022 survey	Survey of Consumer Finances 2022	Percentage points
set_type_22	City residence at the time of the 2022 survey	Survey of Consumer Finances 2022	dummy = 1 if the household resides in a city
leader_high_edu_dummy_22	Household head's higher educational attainment at the time of the 2022 survey	Survey of Consumer Finances 2022	dummy = 1 if the household head has higher educational attainment
members_20	Number of household members at the time of the 2020 survey	Survey of Consumer Finances 2020	Number of people
members_22	Number of household members at the time of the 2022 survey	Survey of Consumer Finances 2022	Number of people
inter_inrate_income_20	Effect of the loan rate and monthly income interaction in 2020	Banki.ru online services and Survey of Consumer Finances 2020	Product of the loan rate and monthly household income
X.month	dummy of the month of the 2022 survey	Survey of Consumer Finances 2022	dummy = 1 if the survey was conducted in the month of number X, where X changes from X=3 for March to X=9 for September

Detailed description of some variables

- **Ie_hh20** is the indication of inflation concerns by at least one household member in the 2020 survey

M14. What is your personal greatest concern in the current situation?

Dummy	Response option
1	GROWING PRICES FOR GOODS AND SERVICES
0	RUBLE DECLINE VS DOLLAR / EURO OR FURTHER DECLINE IN THE FUTURE
0	JOB LOSS OR POSSIBLE JOB LOSS IN THE FUTURE: YOU OR YOUR FAMILY MEMBERS
0	POLITICAL INSTABILITY OR POSSIBLE POLITICAL INSTABILITY
0	REDUCTION OF YOUR FAMILY INCOME OR ITS POSSIBLE FURTHER REDUCTION
0	DOMESTIC ECONOMIC CRISIS
0	OTHER (SPECIFY)
0	I HAVE NO CONCERN IN THE CURRENT SITUATION

- **future_demand_all** = 1 if at least one household member answers YES to question **C1.26. 'Are you currently considering taking a loan?'**
- **bigger_region_id** is the region's macrogroup indicator

Category	List of regions
1	Central FD North Western FD
2	Southern FD North Caucasian FD
3	Volga FD Urals FD

	Siberian FD
4	Far Eastern FD

- **risk** is willingness to take financial risks (= 1 for household if code=1 for at least one household member)

T11 Which of the statements best describes you personally?

Code	**Response option**
1	I AM READY TO TAKE SIGNIFICANT FINANCIAL RISKS TO MAKE A HIGH PROFIT
0	I AM PREPARED FOR QUITE SIGNIFICANT RISKS FOR A FAIRLY HIGH PROFIT
0	I AM READY FOR MODERATE FINANCIAL RISKS FOR A MODERATE PROFIT
0	I AM NOT READY TO ASSUME ANY FINANCIAL RISKS

- **macro_oneyear_20** is the indicator of the household head's expectations as to the economic situation in the country in the next 12 months as of the 2020 survey

Y10. And now a few questions about another subject. While on overall domestic economic conditions, do you think the next 12 months will be good or bad for the national economy, or neither good nor bad?

For each individual

Category	Response option
1	GOOD
0	NEITHER GOOD NOR BAD
-1	BAD

- **pro_save_20** is the household head's propensity to save as of the time of the 2022 survey

M19. In your opinion, what is now the best way to dispose of free money: to save or spend it?

Dummy	Response option
1	SAVE MONEY
0	SPEND MONEY

- **wealth_exp_fcr_20** is the indicator of expectations of change in the financial position, calculated as the average for adult members of households at the time of the 2020 survey

Y12. How do you expect the financial position of your family to change next year?

For each individual

Category	Response option
1	Will rather improve
0	Will remain unchanged

-1	Will rather deteriorate

Household-level

Category	**Average household**
1	If wealth_exp_fcr_average>0
0	wealth_exp_fcr_average =0
-1	If wealth_exp_fcr_average <0

- **fin_acs_22** is the financial inclusion index, average household, at the time of the 2022 survey. The index is based on the question about the availability of financial services via the internet (M3) and the question about the availability of financial services WITHOUT the internet (M4).

fin_acs_22 = $\frac{\mathbf{fin\_acs\_offline+fin\_acs\_online}}{\mathbf{2}}$

fin_acs_offline is the indicator (continuous variable) of the availability of a loan or microloan WITHOUT the internet, calculated for an average household at the time of the 2022 survey.

M3. In your residential area, are the following transactions possible or impossible without the internet?

a) obtain a loan
b) obtain a microloan

For each individual

Category	**Response option**
1	Possible

0	Impossible

fin_acs_offline= $\frac{\text{Household average}(\boldsymbol{M3a})+\text{Household average}(\boldsymbol{M3b})}{\mathbf{2}}$

- **fin_acs_online** is the indicator (continuous variable) of the possibility of obtaining a loan or microloan using the authors' own calculations, calculated for an average household at the time of the 2022 survey.

M4. Which financial products or services can be obtained with the internet?

a) a loan
b) a microloan

fin_acs_online= $\frac{\textbf{Household average}(\boldsymbol{M4a})+\textbf{Household average}(\boldsymbol{M4b})}{\mathbf{2}}$

For each individual

Category	**Response option**
1	Possible
0	Impossible

- **month** is the indicator of the month of the survey

Category	**List of regions**
3	March
4	April
5	May
6	June
7	July

8	August
9	September

- **fin_litrcy_22** is the financial literacy index for an average household at the time of the 2022 survey.
- **fin_litrcy_leader_22** is the household head's financial literacy index at the time of the 2022 survey.

The financial literacy index is based on questions about the respondent's economic (T2–T9, T21) and mathematical literacy (T22, T24–T26).

T2. Which of the items listed do you think are covered by the state deposit insurance system?
T3 What is the maximum fully insured deposit amount in a Russian bank?
T4 Select the statement that you think is correct. Yield and risk relationship
T5 What does the 'key rate' means, in your view? Select one answer.
T6 Are you monitoring changes in household loan rates?
T7 Do you think that the loan rates – compared to two years ago – have become lower, remained unchanged, or have become higher?
T9 Do you think that the deposit rates – compared to two years ago – have become lower, remained unchanged, or have become higher?
T21. Look at the card and say which statement best describes the way you usually sign contracts when buying financial services in banks, insurance companies, pension funds, management companies, mutual funds, etc., for example, when opening an account, taking a loan, and purchasing an insurance certificate or other financial services.
T23. Suppose you deposit ₽100,000 with a bank for five years at 10% per annum. Interest will accrue each year and will be added to the principal of the deposit. How much money will there be in your account in five years if you keep both the principal and the accrued interest in your account?
T24. Imagine that a year ago, you deposited money into an account with an annual interest rate of 8%, while the annual inflation was 10%. Do you think that you can now buy more, less, or as many goods and services as one year ago with the money in your account?
T25. Suppose that your income will double in 2022, but so will prices for all goods and services. Do you think you will be able to buy more, fewer, or as many goods and services as in 2021?

T26. Suppose you saw the same television set on sale in two stores. Its original price in each of the stores was ₽10,000. One store offers a discount of ₽1,500 off the original price, while the other store offers 10% off. Which is the better deal – the discount of ₽1,500 or of 10%?

Response score	
1	Correct response selected
0	For other options

T8 Are you monitoring changes in bank deposit rates?

Response score	
1	‘Yes’ is selected, provided that the correct answer is T9
0	For other options

Questions T6–T7, T8–T9 were scored as follows: 1 point for 'Yes' in question T6 was scored if in question T7 the direction of the rate change was mentioned correctly (also 1 point for the right direction of change). That is, for questions T6–T7, T8–T9, the respondent receives 2 or 0 points.

Total household assets are the amount of non-financial assets of the whole household and each individual member. In 2020, the calculation of these indicators was different 2022 due to changes in the questionnaire.

The debt service-to-income ratio for unsecured loans is calculated as follows:

$$\frac{\text{payments} + \text{credit card payments}}{\text{household income}},$$

where payments are household spending for the month before the survey date for payments on unsecured loans excluding credit cards: debt body + interest
credit card payments are credit card debt at the survey time and annual interest payments on arrears (regardless of a grace period) divided by 12, total for all credit cards of the household. That is, in the absence of more accurate data, it is assumed that debt on credit cards is paid in equal shares during the year.

The debt-service-to-income ratio is calculated as follows:
$\frac{\text{payments} + \text{credit card payment}}{\text{household spending}}$,

The total debt burden indicator is the ratio of all payments on all loans and borrowings to income or expenses of the household for the past month.

APPENDIX 2

Descriptive statistics

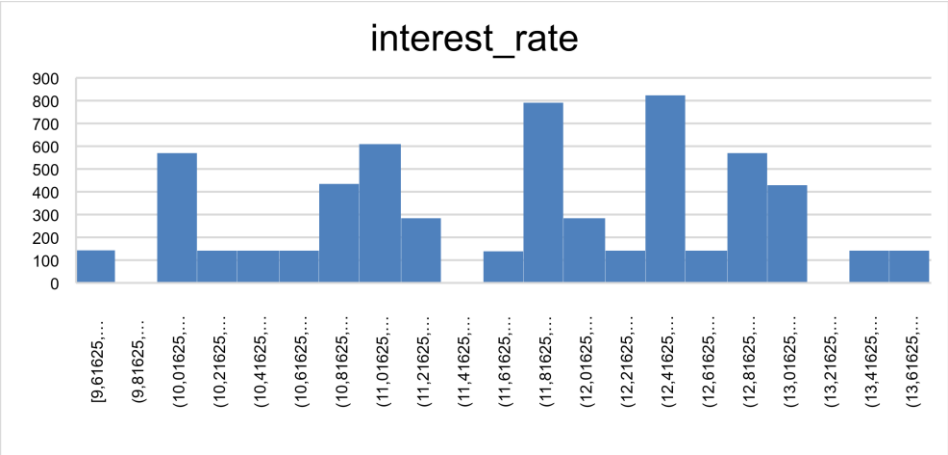
Variable	Description	Mean	Min	Max	Standard deviation	No. of non-empty observation	5% quantile	95% quantile	Sum
binar_demand_hh_corr2dsti	Fact of requesting a loan for the past two years	0.27	0	1	0.45	6,081	0	1	1,669
interest_rate	Average rate on loans issued at place of residence of household	11.77	9.62	13.75	1.05	6,066	10.08	13.18	-
ie_hh20	Inflation expectations	0.5114702	0	1	0.5	5,013	0	1	2,564
money_inc_20	Monthly household income in 2020	46,747.58	110	499,000	34,688.43	4,905	12,125	107,900	-
total_liabilities_20	Total liabilities of household in 2020	73,851.82	0	7,800,000	341,120.6	4,553	0	430,000	-
total_assets_20	Total liabilities of household in 2020	226,8015	0	55,000,000	3,073,339	4,193	0	7,500,000	-
children_20	Number of household members aged under 18 in 2020	0.43	0	7	0.78	5,013	0	2	-
children_22	Number of household members aged under 18 in 2022	0.42	0	6	0.78	6,081	0	2	-
children_20_22	Average number of household members aged under 18 in 2020–2022	0.4	0	6	0.74	5,013	0	2	-
married_20	Marital status of household head in 2020	0.49	0	1	0.5	4,996	0	1	2,460
married_22	Marital status of household head in 2022	0.55	0	1	0.49	6,081	0	1	3,374
average_adults_age_20	Average age of adult members in 2020	51.57	18	95	14.9	5,013	29	78	-

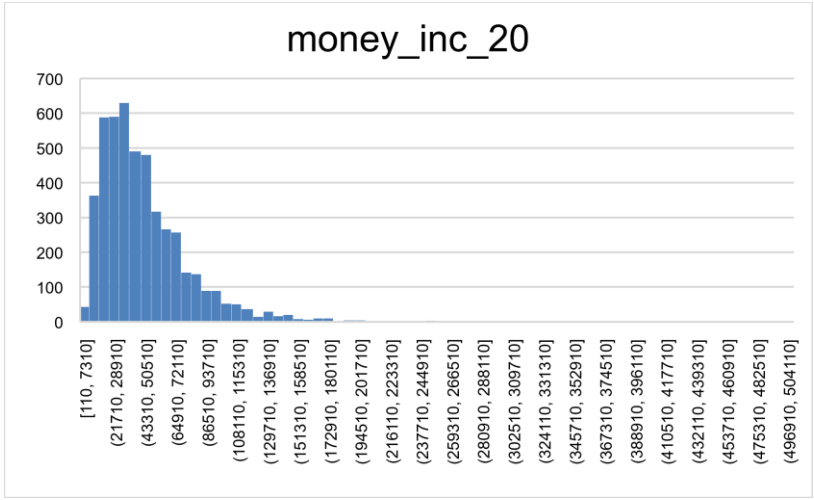
average_adults_age_22	Average age of adult household members in 2022	51.1	18	97	15.2	6,081	29	77	-
average_adults_age_20_22	Average age of adult household members 2020–2022	52.3	19	96	14.7	5,013	30. 5	78	-
share_of_employed_20	Share of employed household members in 2020	0.5	0	1	0. 41	5,013	0	1	-
share_of_employed_22	Share of employed household members in 2022	0. 53	0	1	0.41	6,081	0	1	-
share_of_employed_20_22	Average share of employed household members in 2020–2022	0.5	0	1	0.38	5,013	0	1	-
adults_high_edu_dummy_22	Higher educational attainment of at least one household member, 2022	0.41	0	1	0.49	6,081	0	1	2,506
risk_20	Willingness of at least one household member to take financial risks in 2020	0.09	0	1	0.29	6,081	0	1	549
risk_22	Willingness of at least one household member to take financial risks in 2022	0.09	0	1	0.28	6,081	0	1	532
central_nw. bigger_region_id	Reside in Central or North Western District	0. 39	0	1	0. 48	6,081	0	1	2,377
south_ ccs.bigger_region_id	Reside in Southern or North Caucasian Federal District	0.14	0	1	0.34	6,081	0	1	859
priv_ural_sib.bigger_region_id	Reside in Volga, Urals or Siberian Federal District	0.42	0	1	0.49	6,081	0	1	2,561
far_east.bigger_region_id	Reside in the Far Eastern Federal District	0.05	0	1	0. 21	6,081	0	1	284
1.macro_oneyear_20 Household head's expectations of positive economic developments for next 12 months in 2020		0.04	0	1	0.20	4,575	0	1	260
0.macro_oneyear_20	Household head's expectations for neither a good nor bad economic	0. 24	0	1	0.43	4,575	0	1	1,460

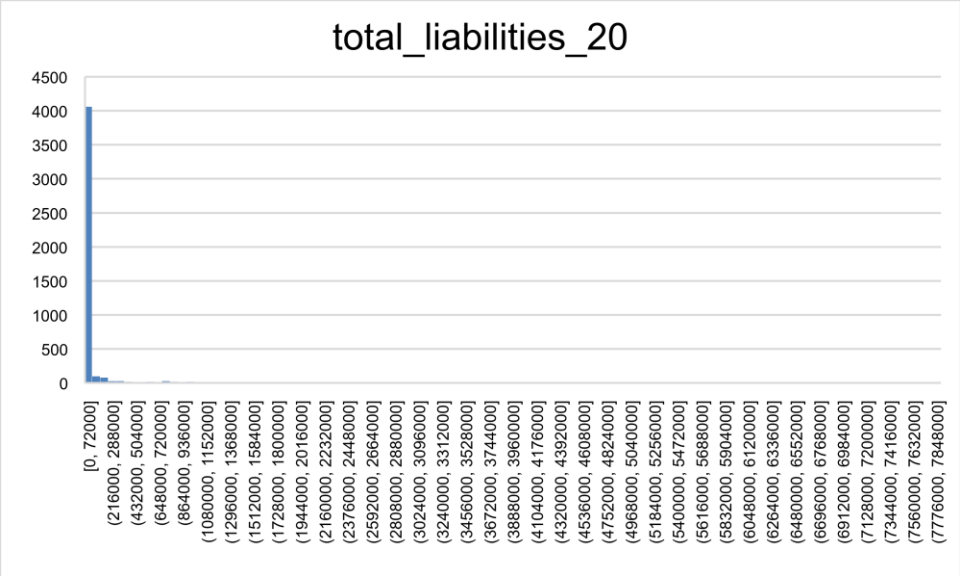
	situation in the country for the next 12 months in 2020								
-1.macro_oneyear_20	Expectations of head for negative economic developments for next 12 months, 2020	0.46	0	1	0.5	4,575	0	1	2,855
1.macro_oneyear_20_l22	Expectations of head for good economic developments for two years ahead, 2020	0.05	0	1	0.23	5,664	0	1	326
0.macro_oneyear_20_l22	Household head’s (2020) expectations of neither positive nor negative economic developments for next two years, in 2020	0.33	0	1	0.47	5,664	0	1	1,979
-1.macro_oneyear_20_l22	Household head’s expectations of negative economic developments for next two years in 2020	0.53	0	1	0.5	5,664	0	1	3,248
pro_save_20_l20	Household head's (2020) propensity to save in 2020	0.66	0	1	0.47	4,381	0	1	2,886
pro_save_20_l22	Household head's (2022) propensity to save in 2020	0.31	0	1	0.46	6,070	0	1	1,883
1.wealth_exp_fcr_20_hh20	Expectations of improvements in financial position in 2020, average household, composition as of 2020	0.11	0	1	0.31	4,531	0	1	659
0.wealth_exp_fcr_20_hh20	Expectations of no change in financial position in 2020, composition as of 2020	0. 39	0	1	0.48	4,531	0	1	2,348
-1.wealth_exp_fcr_20_hh20	Expectations of deterioration in financial position, average household in 2020, composition of households as of 2020	0.25	0	1	0.43	4,531	0	1	1,524
1.wealth_exp_fcr_20_hh22	Expectations of improvements in financial position, average household	0.16	0	1	0.36	6,080	0	1	977

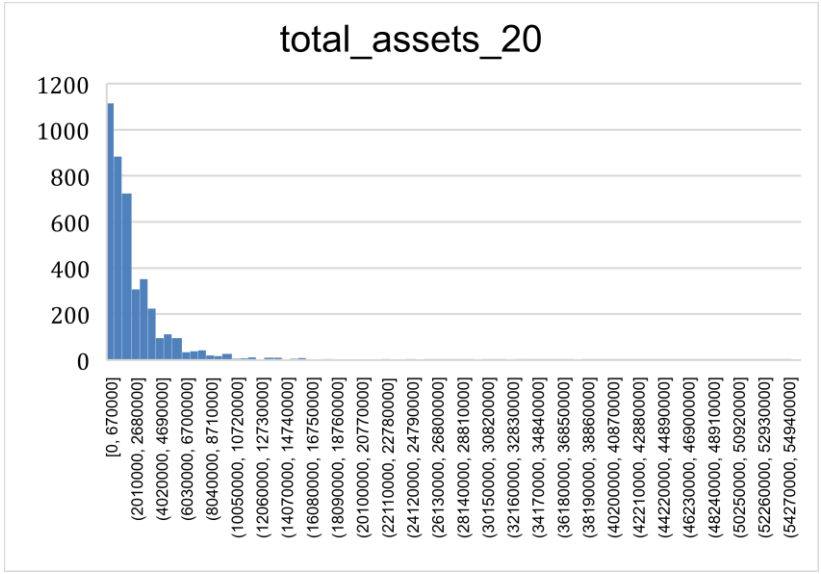
	in 2020, composition of households as of 2022								
0.wealth_exp_fcr_20_hh22	Expectations of no change in financial position in 2020, composition as of 2020	0.45	0	1	0.5	6,080	0	1	2,776
-1.wealth_exp_fcr_20_hh22	Expectations of deterioration in financial position, average household in 2020, composition of households as of 2022	0.28	0	1	0.45	6,080	0	1	1,744
fin_acs_22	Financial inclusion index, household average, in 2022	0.84	0	1	0. 26	3,615	0.25	1	-
fin_litrcy_22	Financial literacy index, household average, in 2022	45.7	0	100	19. 63	6,081	8. 33	76.92	-
fin_litrcy_leader_22	Financial literacy index, household average, in 2022	47	0	100	21.48	6,081	8.33	84. 62	-
set_type_22	City residence	0.75	0	1	0.43	6,081	0	1	4,566
leader_high_edu_dummy_22	Higher educational attainment of household head	0.32	0	1	0.47	6,081	0	1	1,948
members_20	Number of household members in 2020	2.55	1	14	1.36	5,013	1	5	-
members_22	Number of household members in 2022	2.54	1	15	1.39	6,081	1	5	-
inter_inrate_income_20	Effect of the loan rate and monthly income interaction in 2020	549,810.6	1,420.38	5,375,602	408,768.9	4,905	143,457.1	1,251,390	-
3.month	Survey run in March	0.003	0	1	0.06	6,081	0	1	39
4.month	Survey run in April	0.04	0	1	0.2	6,081	0	1	507
5.month	Survey run in May	0.2	0	1	0.4	6,081	0	1	2,536
6.month	Survey run in June	0.14	0	1	0. 35	6,081	0	1	1,712
7.month	Survey run in July	0.07	0	1	0. 26	6,081	0	1	855
8.month	Survey run in August	0.03	0	1	0.17	6,081	0	1	360
9.month	Survey run in September	0.006	0	1	0.08	6,081	0	1	72

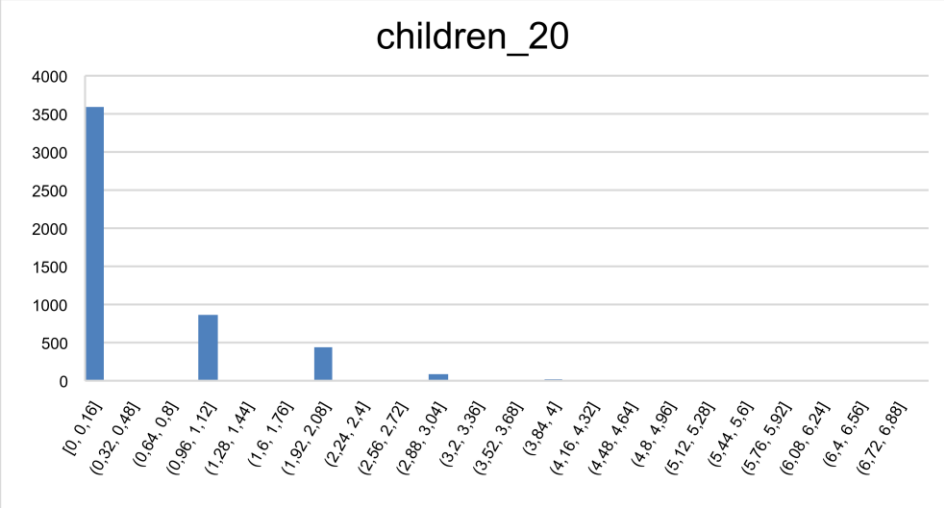
Distribution of certain variables (Y axis is number of households)







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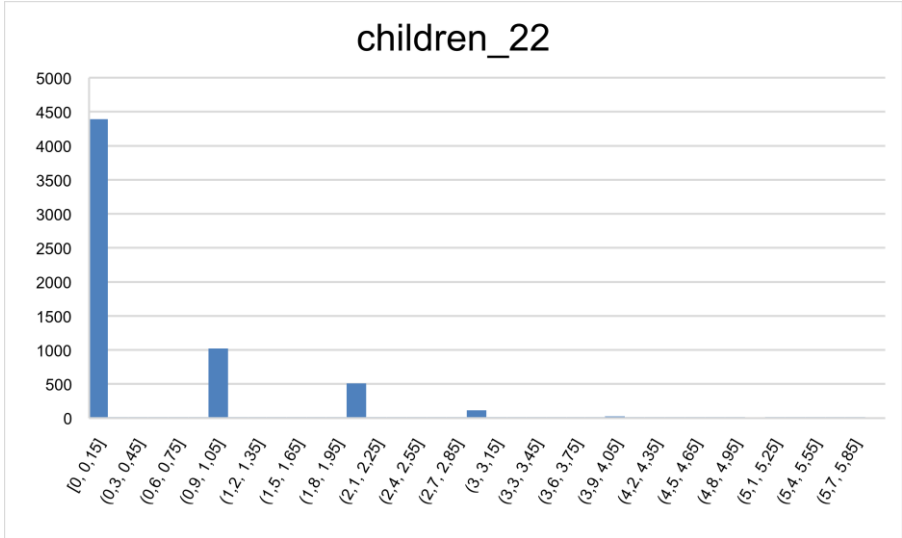
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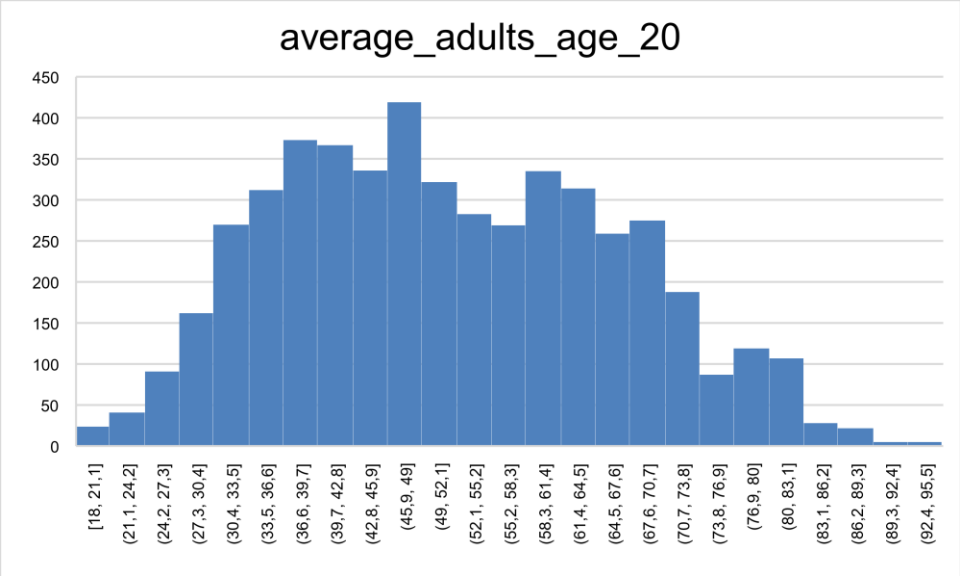
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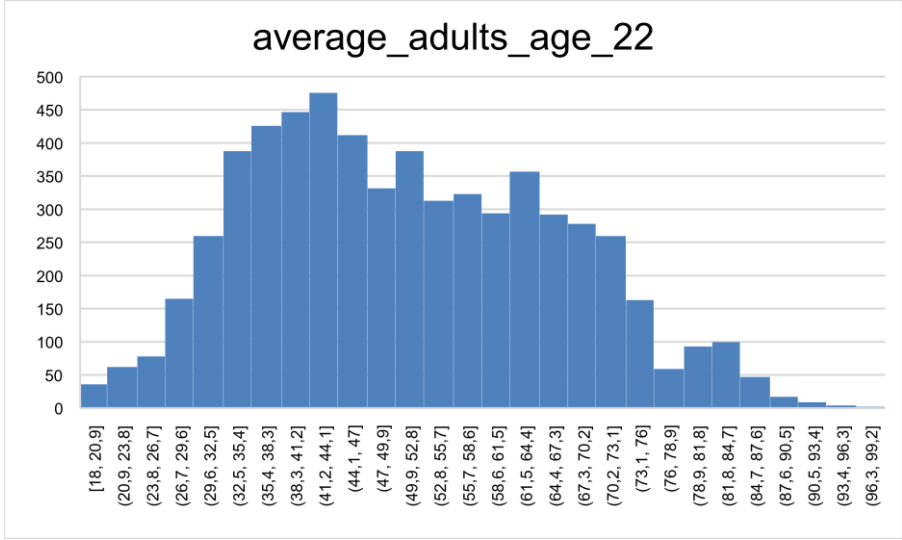
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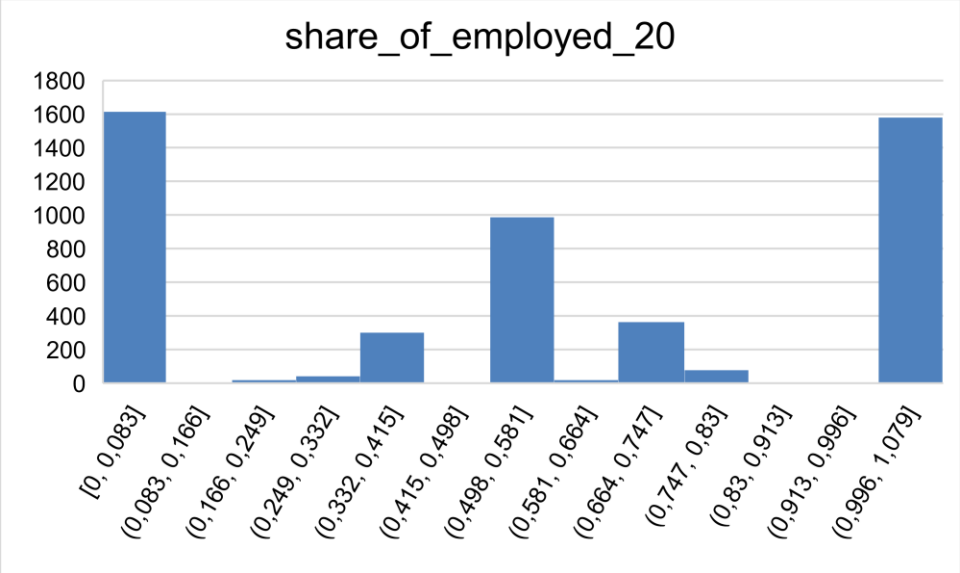
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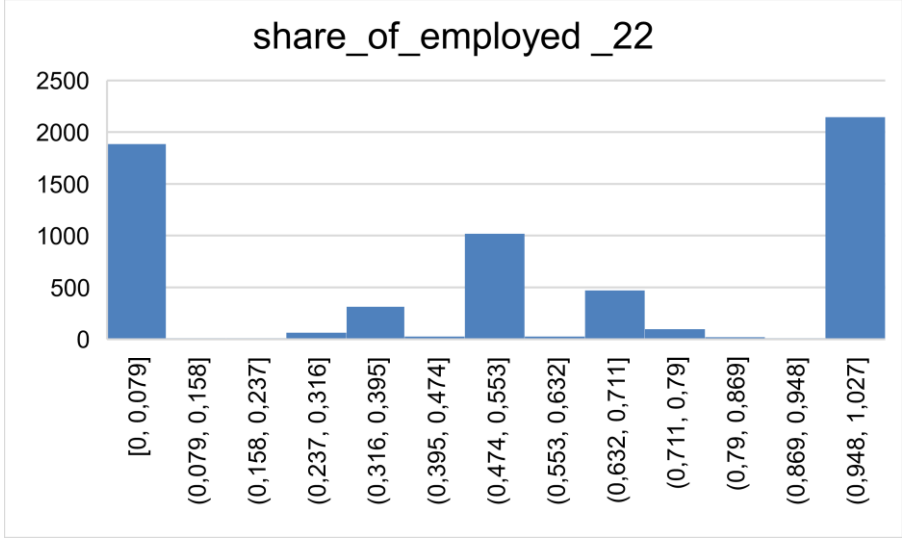
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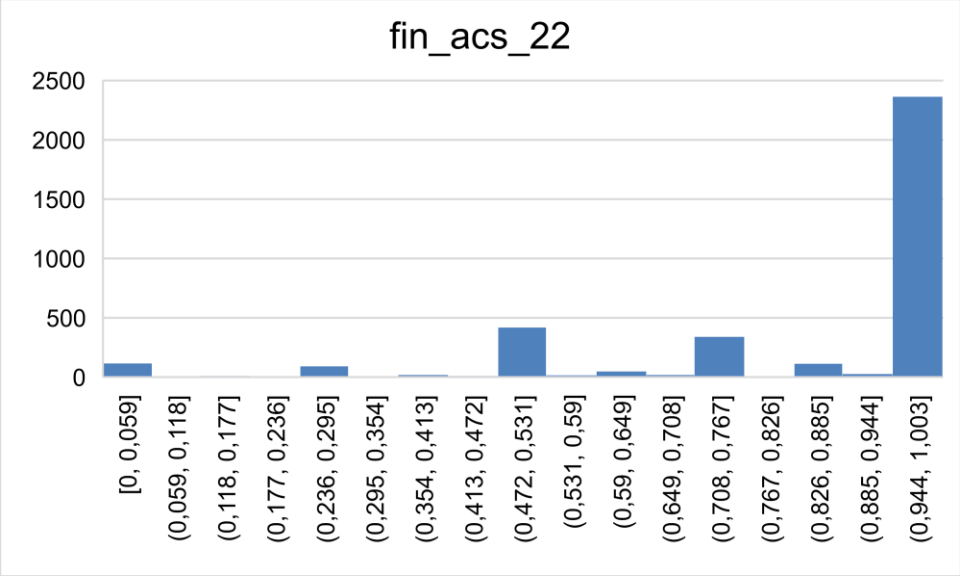
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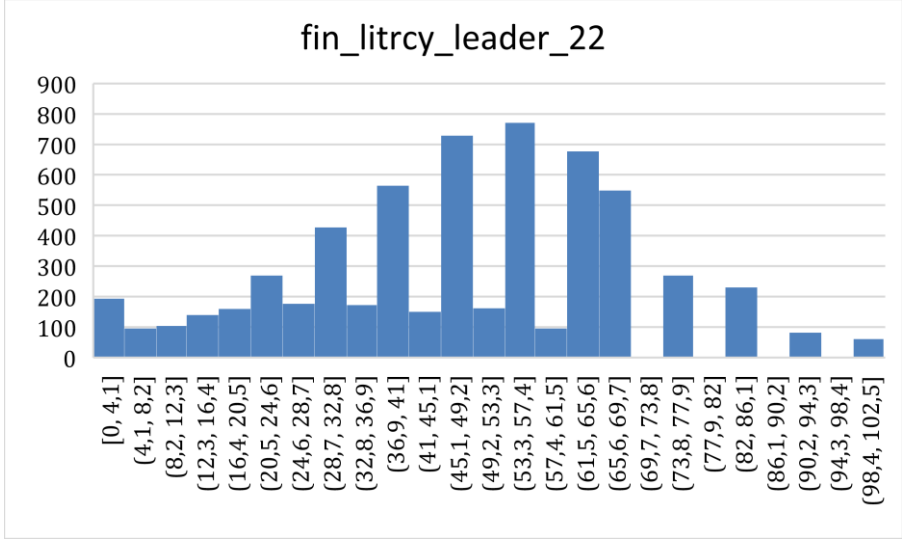
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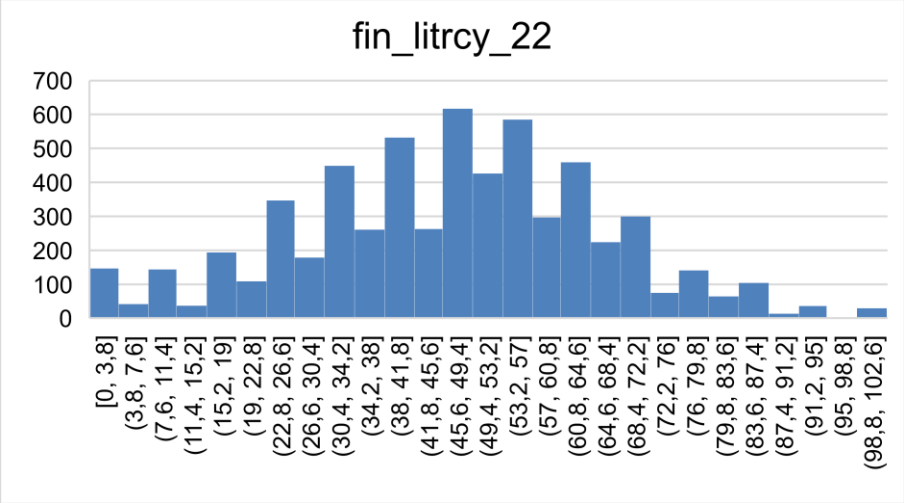
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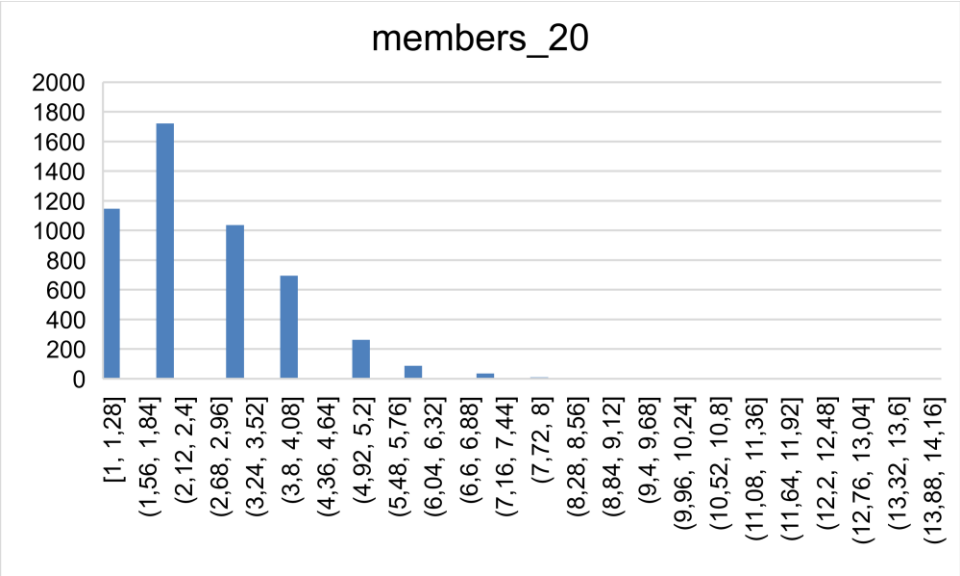
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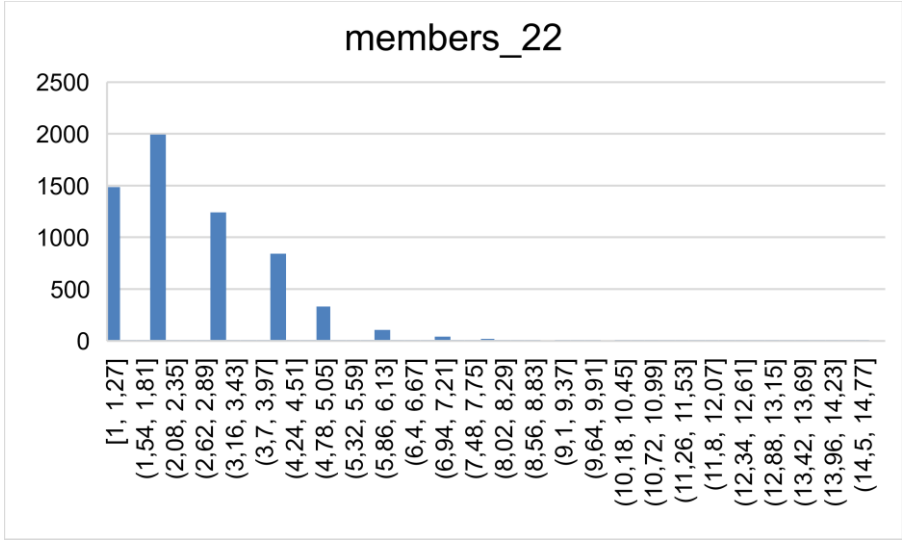
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APPENDIX 3

Estimated marginal effects of the model with exogenous variables, calculated as average for 2020–2022

Marginal effects in average regression values, decimal quantity in points (0.01 points = 1%)

Variable		Baseline regression	+ risk appetite	+ macroregion of residence	+ expectations as to economic outlook	+ propensity to save	+ expectations of change in financial position	+ financial inclusion
		(1)	(2)	(3)	(4)	(4.1)	(4.2)	(5)
interest_rate	Average loan rates offered by banks	**-0.019*** **	**-0.020*** **	**-0.017*** **	**-0.016** **	**-0. 010**	**-0.016** **	**-0.022** **
		(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.009)
ln_money_inc_20	Logarithm of monthly income of household	0.018*	0.017	0.022**	0.027**	0.028**	0.019*	0.014
		(0.010)	(0.010)	(0.011)	(0.011)	(0.012)	(0.011)	(0.015)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.005***	0.004***	0.004***	0.005***	0.004***	0.005***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.015	0.015*	0.016*	0.016*	0.011	0.013	0.025**
		(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.012)
married_22	Marital status of household head	-0.006	-0.007	-0.007	-0.008	-0.006	-0.002	-0.009
		(0.014)	(0.013)	(0.014)	(0.014)	(0.015)	(0.014)	(0.019)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.009***	0.009***	0.010***	0.008**	0. 006	0.009**	0.012**
		(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.006)
average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed household members in 2020–2022	0.088***	0.091***	0.085***	0.097***	0.106***	0.093***	0.115***
		(0.021)	(0.021)	(0.021)	(0.022)	(0.023)	(0.022)	(0.031)
		0.006	0.005	0.007	0.001	0.009	0.006	-0.002

adults_high_edu_dummy_22	Higher educational attainment of at least one household member	(0.013)	(0.013)	(0.013)	(0.014)	(0.015)	(0.014)	(0.019)
ie_hh20	Inflation expectations	0.022*	0.023*	0.017	0.021	0.025*	0.028**	0.027
		(0.013)	(0.013)	(0.013)	(0.014)	(0.015)	(0.014)	(0.019)
risk_20	Willingness to take financial risks		0.036*	0.037*	0.035*	0.033	0.043**	0.054**
			(0.020)	(0.020)	(0.021)	(0.021)	(0.021)	(0.027)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District			0.007	0.010	0.003	0.002	0.015
				(0.020)	(0.021)	(0.023)	(0.021)	(0.029)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District			0.047***	0.053***	0.049***	0.058***	0.045**
				(0.014)	(0.015)	(0.016)	(0.015)	(0.021)
far_east,bigger_region_id	Reside in Far Eastern Federal District			0.040	0.018	0.000	0.045	0.113**
				(0.030)	(0.030)	(0.032)	(0.031)	(0.049)
1.macro_oneyear_20	Household head's expectations of positive economic developments for next 12 months				-0.053*	-0.054*		
					(0.027)	(0.028)		
-1.macro_oneyear_20	Household head's expectations of negative economic developments for next 12 months				-0.009	-0.001		
					(0.014)	(0.015)		
1.pro_save_20_l20	Propensity to save					-0.039***		
						(0.015)		
1.wealth_exp_fcr_20_hh20	Expectations of improvements in financial position, average household						-0.006	
							(0.019)	
2.wealth_exp_fcr_20_hh20	Expectations of deterioration in financial position, average household						-0.002	
							(0.015)	
fin_acs_22	Financial inclusion index, average household							0.094**
								(0.038)
Observations		3,733	3,733	3,733	3,444	3,075	3,420	2,122
Wald Chi2		703.9	707.2	709.4	673	609	651.9	416.7
Prob>Chi2		0	0	0	0	0	0	0
Pseudo R2		0.194	0.194	0.196	0.204	0.207	0.196	0.175

AIC	3,444	3,443	3,437	3,172	2,827	3,159	2,232
BIC	3,519	3,524	3,536	3,282	2,942	3,270	2,329

Table continued

Variable		+ financial literacy, average household	+ financial literacy of head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
		(6)	(7)	(8)	(9)	(10)	(11)
interest_rate	Average loan rates offered by banks	-0.016**	-0.016***	-0.019***	-0.017***	-0.017***	-0.018***
		(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.007)
ln_money_inc_20	Logarithm of monthly income of household	0.020*	0.020*	0.023**	0.022**	0.036***	0.014
		(0.011)	(0.011)	(0.011)	(0.011)	(0.013)	(0.018)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.004***	0.004***	0.004***	0.004***	0.004***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.016*	0.016*	0.016*	0.016*	0.039***	0.016*
		(0.009)	(0.009)	(0.009)	(0.009)	(0.012)	(0.009)
married_22	Marital status of household head	-0. 007	-0. 009	-0. 009	-0. 007	0.003	-0. 007
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.010***	0.010***	0.009***	0.010***	0.012***	0.010***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed for 2020–2022	0.080***	0.081***	0.085***	0.084***	0.063***	0.086***
		(0.021)	(0.021)	(0.021)	(0.021)	(0.023)	(0.021)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	0.002	0.003	0.008	-0.006	0.004	0.006
		(0.014)	(0.013)	(0.013)	(0.022)	(0.013)	(0.013)

ie_hh20	Inflation expectations	0.019	0.020	0.016	0.018	0.022	0.017
		(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
risk_20	Willingness to take financial risks	0.035*	0.036*	0.037*	0.038*	0.045**	0.037*
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District	0.009	0.015	0.005	0. 007	0. 016	0.008
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District	0.048***	0.048***	0.047***	0.048***	0.049***	0.048***
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
far_east,bigger_region_id	Reside in Far Eastern Federal District	0.042	0.038	0.035	0.041	0.043	0.040
		(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)
fin_litrcy_22	Financial literacy index, average household	0.001*					
		(0.000)					
fin_litrcy_leader_22	Financial literacy index, average household		0.001***				
			(0.000)				
set_type_22	City residence			-0.016			
				(0.016)			
leader_high_edu_dummy_22	Higher educational attainment of household head				0.017		
					(0.023)		
members_20	Number of household members					-0.024***	
						(0.009)	
inter_inrate_income_20	Effect of interest rate and income interaction						0.000
							(0.000)
Observations		3,733	3,733	3,733	3,733	3,733	3,733
Wald Chi2		710	716.5	710.4	709	709.2	709.9
Prob>Chi2		0	0	0	0	0	0
Pseudo R2		0.197	0.199	0.197	0.196	0.198	0.196
AIC		3,435	3,427	3,438	3,438	3,431	3,439
BIC		3,541	3,533	3,544	3,544	3,537	3,544

*Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values: *** - p<0.01, ** - p<0.05, * - p <0.1*

APPENDIX 4

Estimated marginal effects of the model with exogenous variables, calculated as average for 2020–2022 (excluding inflation expectations)

Marginal effects in average regression values, decimal quantity in points (0.01 points = 1%)

Variable		Baseline regression (1)	+ risk appetite (2)	+ macroregion of residence (3)	+ expectations as to economic outlook (4)	+ propensity to save (4.1)	+ expectations of change in financial position (4.2)	+ financial inclusion (5)
interest_rate	Average loan rates offered by banks	**-0.019*** **	**-0.020*** **	**-0.017*** **	**-0.015** **	**-0.009**	**-0.015** **	**-0.021** **
		(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.009)
ln_money_inc_20	Logarithm of monthly income of household	0.017*	0.009	0.022**	0.027**	0.028**	0.020*	0.015
		(0.010)	(0.010)	(0.011)	(0.011)	(0.012)	(0.011)	(0.015)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.005***	0.004***	0.004***	0.005***	0.004***	0.005***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.015*	0. 013	0.016*	0.017*	0.012	0.015	0.026**
		(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.012)
married_22	Marital status of household head	-0.005	-	-0.007	-0.007	-0.005	-0.002	-0.009
		(0.014)	-	(0.014)	(0.014)	(0.015)	(0.014)	(0.019)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.010***	0.010***	0.010***	0.008**	0.006*	0.009***	0.012**
		(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.006)
average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed household members in 2020–2022	0.084***	0.089***	0.081***	0.092***	0.100***	0.087***	0.109***
		(0.021)	(0.021)	(0.021)	(0.022)	(0.023)	(0.022)	(0.031)
		0.005	0.002	0.006	0.000	0.008	0.005	-0.003

adults_high_edu_dummy_22	Higher educational attainment of at least one household member	(0.013)	(0.013)	(0.013)	(0.014)	(0.015)	(0.014)	(0.019)
risk_20	Willingness to take financial risks		0. 032	0.037*	0.035*	0.033	0.043**	0.053**
			(0.020)	(0.020)	(0.021)	(0.021)	(0.021)	(0.027)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District			0.007	0.007	0.003	0.003	0.015
				(0.020)	(0.021)	(0.023)	(0.021)	(0.029)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District			0.050***	0.056***	0.053***	0.061***	0.048**
				(0.014)	(0.015)	(0.016)	(0.015)	(0.021)
far_east,bigger_region_id	Reside in Far Eastern Federal District			0.044	0.023	0.005	0.051	0.119**
				(0.030)	(0.030)	(0.032)	(0.032)	(0.049)
1.macro_oneyear_20	Household head's expectations of positive economic developments for next 12 months				-0.053*	-0.053*		
					(0.027)	(0.028)		
-1.macro_oneyear_20	Household head's expectations of negative economic developments for next 12 months				-0.007	0.000		
					(0.014)	(0.015)		
1.pro_save_20_l20	Propensity to save					-0.040***		
						(0.015)		
1.wealth_exp_fcr_20_hh20	Expectations of improvements in financial position, average household						-0.009	
							(0.019)	
2.wealth_exp_fcr_20_hh20	Expectations of deterioration in financial position, average household						-0.003	
							(0.015)	
fin_acs_22	Financial inclusion index, average household							0.092**
								(0.038)
Observations		3,733	3,733	3,733	3,444	3,075	3,420	2,122
Wald Chi2		707.8	707.8	710.1	674.6	610.7	654.1	417.5
Prob>Chi2		0	0	0	0	0	0	0
Pseudo R2		0.192	0.192	0.196	0.203	0.206	0.195	0.175
AIC		3,445	3,445	3,437	3,172	2,828	3,161	2,233
BIC		3,514	3,514	3,530	3,277	2,936	3,266	2,323

Table continued

Variable		+ financial literacy, average household	+ financial literacy of head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
		(6)	(7)	(8)	(9)	(10)	(11)
interest_rate	Average loan rates offered by banks	**-0.015****	**-0.016****	**-0.019*****	**-0.017*****	**-0.016*****	**-0.018*****
		(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)
ln_money_inc_20	Logarithm of monthly income of household	0.020*	0.020*	0.024**	0.022**	0.035***	0.015
		(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.018)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.004***	0.004***	0.004***	0.004***	0.004***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.017*	0.017*	0.016*	0.016*	0.038***	0.016*
		(0.009)	(0.009)	(0.009)	(0.009)	(0.012)	(0.009)
married_20	Marital status of household head	-0.007	-0.008	-0.009	-0.007	0.003	-0.007
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.010***	0.010***	0.010***	0.010***	0.012***	0.010***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed for 2020–2022	0.076***	0.077***	0.082***	0.081***	0.060***	0.082***
		(0.021)	(0.021)	(0.021)	(0.021)	(0.023)	(0.021)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	0.001	0.002	0.007	-0.005	0.003	0.006
		(0.014)	(0.013)	(0.013)	(0.022)	(0.013)	(0.013)
risk_20	Willingness to take financial risks	0.035*	0.036*	0.037*	0.038*	0.044**	0.036*
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)

south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District	0.010	0.015	0.005	0.008	0.015	0.008
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District	0.050***	0.051***	0.049***	0.050***	0.051***	0.050***
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
far_east,bigger_region_id	Reside in Far Eastern Federal District	-0.015**	-0.016**	0.038	0.045	0.047	0.044
		(0.006)	(0.006)	(0.030)	(0.030)	(0.030)	(0.030)
fin_litrcy_22	Financial literacy index, average household	0.001*					
		(0.000)					
fin_litrcy_leader_22	Household head's financial literacy index		0.001***				
			(0.000)				
set_type_22	City residence			-0.017			
				(0.016)			
leader_high_edu_dummy_22	Higher educational attainment of household head				0.014		
					(0.023)		
members_20	Number of household members					-0.022**	
						(0.009)	
inter_inrate_income_20	Effect of interest rate and income interaction						0.000
							(0.000)
Observations		3,733	3,733	3,733	3,733	3,733	3,733
Wald Chi2		710.9	717.3	711.1	709.9	710.5	710.5
Prob>Chi2		0	0	0	0	0	0
Pseudo R2		0.197	0.199	0.196	0.196	0.198	0.196
AIC		3,435	3,427	3,438	3,438	3,432	3,438
BIC		3,535	3,527	3,537	3,538	3,531	3,538

Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values:
**** - p<0.01, ** - p<0.05, * - p <0.1*

APPENDIX 5

Estimated marginal effects of the model with financial variables and the variables of expectations (calculated based on 2020 survey) and other variables at the level of 2022

Variable		Baseline regression	+ risk appetite	+ macroregion of residence	+ expectations as to economic outlook	+ propensity to save	+ expectations of change in financial position	+ financial inclusion
		(1)	(2)	(3)	(4)	(4.1)	(4.2)	(5)
interest_rate	Average loan rates offered by banks	**-0.020*** **	**-0.020*** **	**-0.018*** **	**-0.017*** **	**-0.012***	**-0.016*** **	**-0.023*** **
		(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.009)
ln_money_inc_20	Logarithm of monthly income of household	0.013	0.013	0.017*	0.020*	0.021*	0.015	0.013
		(0.010)	(0.010)	(0.010)	(0.011)	(0.012)	(0.011)	(0.015)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.005***	0.005***	0.004***	0.005***	0.005***	0.005***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_22	Number of household members aged under 18	0.013	0.013	0.014	0.013	0.009	0.011	0.025**
		(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.012)
married_22	Marital status of household head	0.039***	0.038***	0.036***	0.038***	0.040***	0.046***	0.047**
		(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.020)
average_adults_age_22	Average age of adult household members	0.011***	0.011***	0.011***	0.010***	0.009**	0.010***	0.014**
		(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.006)
average_adults_age_22_sqrt	Average age of adult household members squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_22	Average share of employed	0.080***	0.082***	0.078***	0.085***	0.092***	0.076***	0.101***
		(0.018)	(0.018)	(0.018)	(0.019)	(0.020)	(0.020)	(0.027)

	household members							
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	-0.001	-0.001	0.001	-0.003	0.004	0.001	-0.009
		(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.014)	(0.018)
risk_22	Willingness to take financial risks		0.030	0.039*	0.042*	0.033	0.036*	0.037
			(0.021)	(0.022)	(0.022)	(0.023)	(0.022)	(0.028)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District			0.001	0.004	-0.002	-0.001	0.007
				(0.020)	(0.021)	(0.023)	(0.021)	(0.029)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District			0.048***	0.054***	0.052***	0.060***	0.048**
				(0.014)	(0.015)	(0.016)	(0.015)	(0.020)
far_east,bigger_region_id	Reside in Far Eastern Federal District			0.038	0.021	-0.001	0.046	0.116**
				(0.029)	(0.030)	(0.031)	(0.031)	(0.048)
1.macro_oneyear_20_l22	Household head's expectations of positive economic developments for next two years				-0.057**	-0.058**		
					(0.027)	(0.028)		
-1.macro_oneyear_20_l22	Household head's expectations of negative economic developments for next two years				-0.009	-0.004		
					(0.014)	(0.015)		
1.pro_save_20_l22	Propensity to save					-0.030**		
						(0.015)		
1.wealth_exp_fcr_20_hh22	Expectations of improvements in financial position, average household						-0.013	
							(0.019)	
2.wealth_exp_fcr_20_hh22	Expectations of deterioration in financial position, average household						-0.003	
							(0.015)	
fin_acs_22								0.100***

	Financial inclusion index, average household							(0.038)
Observations		3,748	3,748	3,748	3,458	3,081	3,429	2,132
Wald Chi2		722.4	728.6	726.7	682.3	607	668.6	429
Prob>Chi2		0	0	0	0	0	0	0
Pseudo R2		0.198	0.199	0.202	0.209	0.209	0.202	0.180
AIC		3,430	3,430	3,423	3,153	2,812	3,139	2,228
BIC		3,499	3,505	3,516	3,258	2,920	3,243	2,319

Table continued

Variable		+ financial literacy, average household	+ financial literacy of head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
		(6)	(7)	(8)	(9)	(10)	(11)
interest_rate	Average loan rates offered by banks	**-0.016****	**-0.017*****	**-0.019*****	**-0.018*****	**-0.018*****	**-0.019*****
		(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)
ln_money_inc_20	Logarithm of monthly income of household	0.015	0.016	0.019*	0.018*	0.020*	0.010
		(0.010)	(0.010)	(0.011)	(0.010)	(0.011)	(0.018)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.005***	0.005***	0.005***	0.005***	0.004***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_22	Number of household members aged under 18	0.014	0.014*	0.014	0.014	0.020*	0.014
		(0.009)	(0.009)	(0.009)	(0.009)	(0.012)	(0.009)
married_22	Marital status of household head	0.037***	0.035***	0.035**	0.037***	0.040***	0.036***
		(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)
average_adults_age_22	Average age of adult household members	0.012***	0.012***	0.011***	0.012***	0.012***	0.011***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
average_adults_age_22_sqrt	Average age of adult household members squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_22	Average share of employed members	0.073***	0.075***	0.078***	0.077***	0.073***	0.079***
		(0.019)	(0.018)	(0.018)	(0.018)	(0.020)	(0.018)
adults_high_edu_dummy_22		-0.004	-0.003	0.002	-0.013	0.001	0.000

	Higher educational attainment of at least one household member	(0.014)	(0.013)	(0.013)	(0.022)	(0.013)	(0.013)
risk_22	Willingness to take financial risks	0.039*	0.040*	0.039*	0.039*	0.041*	0.038*
		(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District	0.004	0.009	-0.000	0.002	0.004	0.002
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District	0.049***	0.050***	0.048***	0.048***	0.049***	0.049***
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
far_east,bigger_region_id	Reside in Far Eastern Federal District	0.041	0.037	0.035	0.040	0.040	0.038
		(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
fin_litrcy_22	Financial literacy index, average household	0.001*					
		(0.000)					
fin_litrcy_leader_22	Financial literacy index, average household		0.001***				
			(0.000)				
set_type_22	City residence			-0.011			
				(0.016)			
leader_high_edu_dummy_22	Higher educational attainment of household head				0.018		
					(0.023)		
members_22	Number of household members					-0.006	
						(0.008)	
inter_inrate_income_20	Effect of interest rate and income interaction						0.000
							(0.000)
Observations		3,748	3,748	3,748	3,748	3,748	3,748
Wald Chi2		728.1	733.2	727.9	727.5	727.8	727.2
Prob>Chi2		0	0	0	0	0	0
Pseudo R2		0.203	0.205	0.202	0.202	0.202	0.202
AIC		3,421	3,414	3,424	3,424	3,424	3,425
BIC		3,521	3,514	3,524	3,524	3,524	3,524

Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values:
**** - p<0.01, ** - p<0.05, * - p <0.1*

APPENDIX 6

Estimated marginal effects of the model with most variables measured according to the 2020 survey

Variable		Baseline regression	+ risk appetite	+ macroregion of residence	+ expectations as to economic outlook	+ propensity to save	+ expectations of change in financial position	+ financial inclusion
		(1)	(2)	(3)	(4)	(4.1)	(4.2)	(5)
interest_rate	Average loan rates offered by banks	**-0.019*** **	**-0.019*** **	**-0.017*** **	**-0.015** **	**-0.009**	**-0.015** **	**-0.021** **
		(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.009)
ln_money_inc_20	Logarithm of monthly income of household	0.021**	0.020*	0.026**	0.031***	0.031**	0.023**	0.020
		(0.011)	(0.011)	(0.011)	(0.012)	(0.012)	(0.012)	(0.015)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.005***	0.005***	0.005***	0.005***	0.005***	0.006***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20	Number of household members aged under 18	0.015*	0.015*	0.016*	0.017*	0.010	0.014	0.021*
		(0.009)	(0.009)	(0.008)	(0.009)	(0.009)	(0.009)	(0.012)
married_20	Marital status of household head	-0.004	-0.005	-0.006	-0.006	-0.004	-0.000	-0.007
		(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.019)
average_adults_age_20	Average age of adult household members	0.003	0.003	0.003	0.001	0.000	0.002	-0.001
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.006)
average_adults_age_20_sqrt	Average age of adult household members squared	-0.000**	-0.000**	-0.000**	-0.000	-0.000	-0.000*	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20	Average share of employed household members	0.060***	0.064***	0.060***	0.071***	0.076***	0.069***	0.082***
		(0.019)	(0.019)	(0.019)	(0.020)	(0.021)	(0.020)	(0.028)
adults_high_edu_dummy	Higher educational attainment of at least one household member	0.009	0.009	0.010	0.005	0.011	0.010	-0.001
		(0.013)	(0.013)	(0.013)	(0.014)	(0.015)	(0.014)	(0.019)

risk_20	Willingness to take financial risks		0.038*	0.039*	0.037*	0.034	0.045**	0.055**
			(0.020)	(0.020)	(0.021)	(0.022)	(0.021)	(0.027)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District			0.009	0.012	0.004	0.005	0.019
				(0.020)	(0.021)	(0.023)	(0.021)	(0.029)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District			0.052***	0.058***	0.054***	0.063***	0.051**
				(0.014)	(0.015)	(0.016)	(0.015)	(0.021)
far_east,bigger_region_id	Reside in Far Eastern Federal District			0.047	0.026	0.010	0.054*	0.122**
				(0.031)	(0.031)	(0.033)	(0.032)	(0.050)
1.macro_oneyear_20	Household head's expectations of positive economic developments for next 12 months				-0.053*	-0.054*		
					(0.027)	(0.028)		
-1.macro_oneyear_20	Household head's expectations of negative economic developments for next 12 months				-0.006	0.001		
					(0.014)	(0.015)		
1.pro_save_20_l20	Propensity to save					-0.041***		
						(0.015)		
1.wealth_exp_fcr_20_hh20	Expectations of improvements in financial position, average household						-0.008	
							(0.019)	
2.wealth_exp_fcr_20_h20	Expectations of deterioration in financial position, average household						-0.001	
							(0.015)	
fin_acs_22	Financial inclusion index, average household							0.086**
								(0.038)
Observations		3,733	3,733	3,733	3,444	3,075	3,420	2,122
Wald Chi2		672.2	673.7	684.8	653.7	597	627.5	397.5
Prob>Chi2		0	0	0	0	0	0	0
Pseudo R2		0.181	0.182	0.186	0.192	0.197	0.185	0.165

AIC	3,491	3,489	3,481	3,216	2,862	3,202	2,258
BIC	3,559	3,564	3,574	3,320	2,970	3,306	2,348

Table continued

Variable		+ financial literacy, average household	+ financial literacy of household head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
		(6)	(7)	(8)	(9)	(10)	(11)
interest_rate	Average loan rates offered by banks	**-0.015****	**-0.016****	**-0.019*****	**-0.017*****	**-0.016*****	**-0.018*****
		(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)
ln_money_inc_20	Logarithm of monthly income of household	0.020*	0.020*	0.024**	0.022**	0.035***	0.015
		(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.018)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.004***	0.004***	0.004***	0.004***	0.004***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Number of household members aged under 18	0.017*	0.017*	0.016*	0.016*	0.038***	0.016*
		(0.009)	(0.009)	(0.009)	(0.009)	(0.012)	(0.009)
married_20	Marital status of household head	-0.007	-0.008	-0.009	-0.007	0.003	-0.007
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
average_adults_age_20	Average age of adult household members	0.010***	0.010***	0.010***	0.010***	0.012***	0.010***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
average_adults_age_20_sqrt	Average age of adult household members squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20	Average share of employed members	0.076***	0.077***	0.082***	0.081***	0.060***	0.082***
		(0.021)	(0.021)	(0.021)	(0.021)	(0.023)	(0.021)
adults_high_edu_dummy	Higher educational attainment of at least one household member	0.001	0.002	0.007	-0.005	0.003	0.006
		(0.014)	(0.013)	(0.013)	(0.022)	(0.013)	(0.013)
risk_20	Willingness to take financial risks	0.035*	0.036*	0.037*	0.038*	0.044**	0.036*
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District	0.010	0.015	0.005	0.008	0.015	0.008
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)

priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District	0.050***	0.051***	0.049***	0.050***	0.051***	0.050***
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
far_east,bigger_region_id	Reside in Far Eastern Federal District	-0.015**	-0.016**	0.038	0.045	0.047	0.044
		(0.006)	(0.006)	(0.030)	(0.030)	(0.030)	(0.030)
fin_litrcy_22	Financial literacy index, average household	0.001*					
		(0.000)					
fin_litrcy_leader_22	Financial literacy index, average household		0.001***				
			(0.000)				
set_type_22	City residence			-0.017			
				(0.016)			
leader_high_edu_dummy_22	Higher educational attainment of household head				0.014		
					(0.023)		
members_20	Number of household members					-0.022**	
						(0.009)	
inter_inrate_income_20	Effect of interest rate and income interaction						0.000
							(0.000)
Observations		3,733	3,733	3,733	3,733	3,733	3,733
Wald Chi2		687.1	690.3	685.6	684.6	683.2	684.9
Prob>Chi2		0	0	0	0	0	0
Pseudo R2		0.187	0.188	0.186	0.186	0.186	0.186
AIC		3,479	3,471	3,482	3,483	3,479	3,483
BIC		3,578	3,571	3,581	3,582	3,579	3,582

Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values:
**** - p<0.01, ** - p<0.05, * - p <0.1*

APPENDIX 7

Estimated marginal effects of the model with most variables calculated as average for 2020–2022 with sequential expansion in the model specification

Variable		Baseline regression	+ risk appetite	+ macroregion of residence	+ expectations as to economic outlook	+ propensity to save	+ expectations of change in financial position	+ financial inclusion
		(1)	(2)	(3)	(4)	(4.1)	(4.2)	(5)
interest_rate	Average loan rates offered by banks	**-0.019*** **	**-0.020*** **	**-0.017*** **	**-0.015** **	**-0. 009**	**-0. 009**	**-0. 013**
		(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.011)
ln_money_inc_20	Logarithm of monthly income of household	0.017*	0.009	0.022**	0.027**	0.028**	0.026**	0. 021
		(0.010)	(0.010)	(0.011)	(0.011)	(0.012)	(0.013)	(0.017)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.005***	0.004***	0.004***	0.005***	0.004***	0.005***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.015*	0. 013	0.016*	0.017*	0.012	0.009	0. 020
		(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)	(0.014)
married_20	Marital status of household head	-0.005		-0. 007	-0. 007	-0.005	-0.000	-0.003
		(0.014)		(0.014)	(0.014)	(0.015)	(0.015)	(0.021)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.010***	0.010***	0.010***	0.008**	0.006*	0.007*	0.005
		(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.006)
average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed household	0.084***	0.089***	0.081***	0.092***	0.100***	0.102***	0.139***
		(0.021)	(0.021)	(0.021)	(0.022)	(0.023)	(0.024)	(0.035)

	members in 2020–2022							
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	0.005	0.002	0. 006	0.000	0.008	0. 007	-0. 009
		(0.013)	(0.013)	(0.013)	(0.014)	(0.015)	(0.015)	(0.020)
risk_20	Willingness to take financial risks		0.032	0.037*	0.035*	0.033	0.036*	0.051*
			(0.020)	(0.020)	(0.021)	(0.021)	(0.022)	(0.028)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District			0.007	0.010	0.003	0.002	0.015
				(0.020)	(0.021)	(0.023)	(0.023)	(0.033)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District			0.050***	0.056***	0.053***	0.068***	0.055**
				(0.014)	(0.015)	(0.016)	(0.016)	(0.023)
far_east,bigger_region_id	Reside in Far Eastern Federal District			0.044	0.023	0.005	0.030	0.074
				(0.030)	(0.030)	(0.032)	(0.034)	(0.055)
1.macro_oneyear_20	Household head's expectations of positive economic developments for next 12 months				-0.053*	-0.053*	-0.043	-0.028
					(0.027)	(0.028)	(0.029)	(0.041)
-1.macro_oneyear_20	Household head's expectations of negative economic developments for next 12 months				-0. 007	0.000	0.008	0. 023
					(0.014)	(0.015)	(0.016)	(0.022)
1.pro_save_20_l20	Propensity to save					-0.040***	-0.037**	-0.065***
						(0.015)	(0.015)	(0.022)
1.wealth_exp_fcr_20_hh20	Expectations of improvements in financial position, average household						0.007	-0.014
							(0.021)	(0.028)
-1.wealth_exp_fcr_20_hh20	Expectations of deterioration in financial position, average household						-0.008	-0.033
							(0.017)	(0.023)
fin_acs_22								0.143***

	Financial inclusion index, average household							(0.045)
Observations		3,733	3,733	3,733	3,444	3,075	2,869	1,686
Wald Chi2		707.8	707.8	710.1	674.6	610.7	565.2	359.6
Prob>Chi2		0	0	0	0	0	0	0
Pseudo R2		0.192	0.192	0.196	0.203	0.206	0.205	0.193
AIC		3,445	3,445	3,437	3,172	2,828	2,636	1,751
BIC		3,514	3,514	3,530	3,277	2,936	2,755	1,865

Table continued

Variable		+ financial literacy, average household	+ financial literacy of household head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
		(6)	(7)	(8)	(9)	(10)	(11)
interest_rate	Average loan rates offered by banks	**-0.013**	**-0.013**	**-0.021***	**-0.021***	**-0.021***	**-0.023****
		(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
ln_money_inc_20	Logarithm of monthly income of household	0.021	0.021	0.026	0.025	0.038*	0.022
		(0.017)	(0.017)	(0.017)	(0.017)	(0.020)	(0.031)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.005***	0.006***	0.006***	0.005***	0.005***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	0.000	0.000	0.000	0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.020	0.020	0.022	0.023*	0.042**	0.043**
		(0.014)	(0.014)	(0.014)	(0.014)	(0.018)	(0.018)
married_20	Marital status of household head	-0.003	-0.003	-0. 015	-0. 016	-0. 009	-0. 009
		(0.021)	(0.021)	(0.021)	(0.022)	(0.022)	(0.022)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.005	0.005	0. 004	0.003	0. 006	0. 006
		(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
average_adults_age_20_22_sqrt		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

	Average age of adult household members in 2020–2022 squared	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed for 2020–2022	0.138***	0.138***	0.144***	0.148***	0.123***	0.123***
		(0.035)	(0.035)	(0.035)	(0.035)	(0.038)	(0.038)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	-0.009	-0.009	-0.009	0.018	0.025	0.025
		(0.021)	(0.021)	(0.021)	(0.031)	(0.031)	(0.031)
risk_20	Willingness to take financial risks	0.051*	0.051*	0.048*	0.046	0.051*	0.050*
		(0.028)	(0.028)	(0.028)	(0.028)	(0.029)	(0.029)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District	0.016	0.016	-0.007	-0.007	0.000	0.002
		(0.033)	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District	0.056**	0.056**	0.054**	0.053**	0.055**	0.056**
		(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
far_east,bigger_region_id	Reside in Far Eastern Federal District	0.074	0.074	0.040	0.037	0.041	0.040
		(0.055)	(0.055)	(0.054)	(0.054)	(0.054)	(0.054)
1.macro_oneyear_20	Household head's expectations of positive economic developments for next 12 months	-0.028	-0.028	-0.028	-0.029	-0.026	-0.025
		(0.041)	(0.041)	(0.040)	(0.040)	(0.040)	(0.040)
-1.macro_oneyear_20	Household head's expectations of negative economic developments for next 12 months	0.023	0.023	0.028	0.027	0.027	0.027
		(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
1.pro_save_20_l20	Propensity to save	-0.065***	-0.065***	-0.063***	-0.063***	-0.063***	-0.062***
		(0.022)	(0.022)	(0.021)	(0.021)	(0.021)	(0.021)
1.wealth_exp_fcr_20_hh20	Expectations of improvements in financial position, average household	-0.014	-0.014	-0.011	-0.011	-0.010	-0.009
		(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
-1.wealth_exp_fcr_20_hh20	Expectations of deterioration in financial position, average household	-0.033	-0.033	-0.029	-0.029	-0.027	-0.027
		(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
fin_acs_22	Financial inclusion index, average household	0.143***	0.143***	0.214***	0.216***	0.211***	0.211***
		(0.045)	(0.045)	(0.048)	(0.048)	(0.048)	(0.048)

fin_litrcy_22	Financial literacy index, average household	0.000					
		(0.001)					
fin_litrcy_leader_22	Financial literacy index, average household		0.000	0.000	0.000	0.000	0.000
			(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
set_type_22	City residence			-0.119***	-0.118***	-0.120***	-0.120***
				(0.029)	(0.029)	(0.029)	(0.029)
leader_high_edu_dummy_22	Higher educational attainment of household head				-0.037	-0.047	-0.049
					(0.033)	(0.033)	(0.033)
members_20	Number of household members					-0.020	-0.022*
						(0.013)	(0.013)
inter_inrate_income_20	Effect of interest rate and income interaction						0.000
							(0.000)
Observations		1,686	1,686	1,686	1,686	1,686	1,686
Wald Chi2		359.7	359.8	368.2	368.8	372.2	371.7
Prob>Chi2		0	0	0	0	0	0
Pseudo R2		0.193	0.193	0.200	0.201	0.202	0.202
AIC		1,753	1,753	1,739	1,740	1,740	1,741
BIC		1,873	1,873	1,864	1,870	1,875	1,882

Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values:
**** - p<0.01, ** - p<0.05, * - p <0.1*

APPENDIX 8

Estimated marginal effects of the model with exogenous variables with most variables calculated as average between 2020 and 2022 and added locality dummy (38 localities)

Variable		Baseline regression	+ risk appetite	+ macroregion of residence	+ expectations as to economic outlook	+ propensity to save	+ expectations of change in financial position	+ financial inclusion
		(1)	(2)	(3)	(4)	(4.1)	(4.2)	(5)
interest_rate	Average loan rates offered by banks	**-0.007**	**-0.007**	**-0.007**	**-0.018**	**-0.027**	**-0.010**	**0.039**
		(0.030)	(0.030)	(0.030)	(0.031)	(0.032)	(0.031)	(0.063)
ln_money_inc_20	Logarithm of monthly income of household	0.009	0.009	0.009	0.013	0.014	0.006	0.009
		(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.011)	(0.015)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.005***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.011	0.011	0.011	0.011	0.007	0.008	0.018
		(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.012)
married_22	Marital status of household head	0.054***	0.054***	0.053***	0.054***	0.063***	0.060***	0.050***
		(0.013)	(0.013)	(0.013)	(0.014)	(0.015)	(0.014)	(0.019)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.011***	0.011***	0.012***	0.010***	0.009**	0.011***	0.015***
		(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.006)
average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed members in 2020–2022	0.097***	0.097***	0.099***	0.113***	0.123***	0.104***	0.108***
		(0.021)	(0.021)	(0.021)	(0.022)	(0.024)	(0.022)	(0.031)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	0.003	0.003	0.003	-0.002	0.009	-0.000	-0.009
		(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.018)

risk_20	Willingness to take financial risks			0.046**	0.043**	0.039*	0.051**	0.061**
				(0.020)	(0.021)	(0.022)	(0.021)	(0.026)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District			-	-	-	-	-
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District			-	-	-	-	-
far_east,bigger_region_id	Reside in Far Eastern Federal District			-	-	-	-	-
1.macro_oneyear_20	Household head's expectations of positive economic developments for next 12 months				-0.042	-0.042		
					(0.029)	(0.030)		
-1.macro_oneyear_20	Household head's expectations of negative economic developments for next 12 months				-0.031**	-0.022		
					(0.015)	(0.016)		
1.pro_save_20_l20	Propensity to save					-0.045***		
						(0.015)		
1.wealth_exp_fcr_20_hh20	Expectations of improvements in financial position, average household						0.002	
							(0.020)	
2.wealth_exp_fcr_20_hh20	Expectations of deterioration in financial position, average household						-0.025*	
							(0.015)	
fin_acs_22	Financial inclusion index, average household							0.060
								(0.041)
Control for location_id	Locality dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		3,748	3,748	3,748	3,454	3,019	3,434	2,132
Wald Chi2		769.5	769.5	771.4	727.9	673.4	720.4	507.4
Prob>Chi2		0	0	0	0	0	0	0
Pseudo R2		0.238	0.238	0.239	0.248	0.251	0.239	0.233
AIC		3,332	3,332	3,329	3,066	2,708	3,065	2,151
BIC		3,619	3,619	3,622	3,367	3,003	3,366	2,423

Table continued

Variable		+ financial literacy, average household	+ financial literacy of household head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
		(6)	(7)	(8)	(9)	(10)	(11)
interest_rate	Average loan rates offered by banks	**-0.006**	**-0.007**	**-0.004**	**-0.007**	**-0.006**	**-0.007**
		(0.030)	(0.030)	(0.032)	(0.030)	(0.030)	(0.030)
ln_money_inc_20	Logarithm of monthly income of household	0.008	0.008	0.008	0.009	0.022*	0.010
		(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.017)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.011	0.011	0.011	0.011	0.032***	0.011
		(0.009)	(0.009)	(0.009)	(0.009)	(0.012)	(0.009)
married_20	Marital status of household head	0.053***	0.052***	0.053***	0.053***	0.061***	0.053***
		(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.013)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.012***	0.012***	0.012***	0.012***	0.014***	0.012***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed for 2020–2022	0.093***	0.094***	0.099***	0.099***	0.079***	0.099***
		(0.021)	(0.021)	(0.021)	(0.021)	(0.023)	(0.021)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	-0.004	-0.003	0.003	-0.001	-0.000	0.003
		(0.013)	(0.013)	(0.013)	(0.021)	(0.013)	(0.013)
risk_20	Willingness to take financial risks	0.043**	0.044**	0.046**	0.046**	0.051**	0.046**
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
south_ccs,bigger_region_id		-	-	-	-	-	-

	Reside in Southern or North Caucasian Federal District						
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District	-	-	-	-	-	-
far_east,bigger_region_id	Reside in Far Eastern Federal District	-	-	-	-	-	-
fin_litrcy_22	Financial literacy index, average household	0.001**					
		(0.000)					
fin_litrcy_leader_22	Financial literacy index, average household		0.001*				
			(0.000)				
set_type_22	City residence			0.005			
				(0.026)			
leader_high_edu_dummy_22	Higher educational attainment of household head				0.004		
					(0.022)		
members_20	Number of household members					-0.021**	
						(0.008)	
inter_inrate_income_20	Effect of interest rate and income interaction						-0.000
							(0.000)
Control for location_id	Locality dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations		3,748	3,748	3,748	3,748	3,748	3,748
Wald Chi2		772.1	772.9	772.9	771.7	775.1	771.2
Prob>Chi2		0	0	0	0	0	0
Pseudo R2		0.241	0.240	0.239	0.239	0.241	0.239
AIC		3,325	3,326	3,331	3,331	3,325	3,331
BIC		3,624	3,626	3,630	3,630	3,624	3,630

Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values:
**** - p<0.01, ** - p<0.05, * - p <0.1*

APPENDIX 9

Estimated marginal effects of the model with exogenous variables with most variables calculated as average for 2020–2022 without outliers (money_inc_20< 99% quantile)

Variable		Baseline regression	+ risk appetite	+ macroregion of residence	+ expectations as to economic outlook	+ propensity to save	+ expectations of change in financial position	+ financial inclusion
		(1)	(2)	(3)	(4)	(4.1)	(4.2)	(5)
interest_rate	Average loan rates offered by banks	**-0.019*** **	**-0.019*** **	**-0.017*** **	**-0.015** **	**-0.010**	**-0.015** **	**-0.022** **
		(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.009)
ln_money_inc_20	Logarithm of monthly income of household	0.021*	0.021*	0.026**	0.030**	0.032**	0.022*	0.014
		(0.011)	(0.011)	(0.012)	(0.012)	(0.013)	(0.012)	(0.016)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.005***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.016*	0.016*	0.017*	0.017*	0.012	0.015	0.029**
		(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.012)
married_22	Marital status of household head	-0.007	-0.007	-0.009	-0.009	-0.006	-0.004	-0.010
		(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.019)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.010***	0.010***	0.010***	0.008**	0.006*	0.009**	0.013**
		(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.006)
average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed members in 2020–2022	0.077***	0.077***	0.075***	0.087***	0.093***	0.081***	0.104***
		(0.021)	(0.021)	(0.021)	(0.022)	(0.023)	(0.022)	(0.031)
adults_high_edu_dummy_22	Higher educational attainment of at least	0.003	0.003	0.005	-0.001	0.006	0.003	-0.006
		(0.013)	(0.013)	(0.013)	(0.014)	(0.015)	(0.014)	(0.019)

	one household member							
risk_20	Willingness to take financial risks			0.036*	0.034	0.031	0.041*	0.054**
				(0.020)	(0.021)	(0.022)	(0.021)	(0.027)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District			0.011	0.014	0.007	0.007	0.021
				(0.020)	(0.021)	(0.023)	(0.021)	(0.029)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District			0.050***	0.057***	0.056***	0.062***	0.047**
				(0.014)	(0.015)	(0.016)	(0.015)	(0.021)
far_east,bigger_region_id	Reside in Far Eastern Federal District			0.057*	0.036	0.020	0.064*	0.129**
				(0.032)	(0.032)	(0.034)	(0.033)	(0.051)
1.macro_oneyear_20	Household head's expectations of positive economic developments for next 12 months				-0.046*	-0.046*		
					(0.027)	(0.028)		
-1.macro_oneyear_20	Household head's expectations of negative economic developments for next 12 months				-0.000	0.009		
					(0.015)	(0.015)		
1.pro_save_20_l20	Propensity to save					-0.038**		
						(0.015)		
1.wealth_exp_fcr_20_hh20	Expectations of improvements in financial position, average household						-0.002	
							(0.020)	
-1.wealth_exp_fcr_20_hh20	Expectations of deterioration in financial position, average household						0.000	
							(0.015)	
fin_acs_22	Financial inclusion index, average household							0.097**
								(0.038)
Observations		3,609	3,609	3,609	3,327	2,962	3,301	2,033
Wald Chi2		670	670	673.7	638.1	576	617.3	398.4
Prob>Chi2		0	0	0	0	0	0	0

Pseudo R2	0.190	0.190	0.194	0.201	0.204	0.193	0.175
AIC	3,308	3,308	3,299	3,041	2,703	3,027	2,122
BIC	3,376	3,376	3,392	3,145	2,810	3,131	2,212

Table continued

Variable		+ financial literacy, average household	+ financial literacy of household head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
		(6)	(7)	(8)	(9)	(10)	(11)
interest_rate	Average loan rates offered by banks	**-0.015****	**-0.016****	**-0.019*****	**-0.017*****	**-0.016*****	**-0.020*****
		(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.007)
ln_money_inc_20	Logarithm of monthly income of household	0.024**	0.024**	0.027**	0.026**	0.040***	-0.002
		(0.012)	(0.012)	(0.012)	(0.012)	(0.013)	(0.023)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.017*	0.017*	0.017*	0.017*	0.042***	0.017*
		(0.009)	(0.009)	(0.009)	(0.009)	(0.013)	(0.009)
married_20	Marital status of household head	-0.009	-0.009	-0.011	-0.009	0.002	-0.010
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.010***	0.010***	0.010***	0.010***	0.012***	0.010***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed for 2020–2022	0.069***	0.070***	0.075***	0.074***	0.051**	0.075***
		(0.021)	(0.021)	(0.021)	(0.021)	(0.023)	(0.021)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	-0.001	-0.000	0.006	-0.013	0.002	0.003
		(0.014)	(0.014)	(0.013)	(0.023)	(0.013)	(0.013)

risk_20	Willingness to take financial risks	0.034	0.034*	0.036*	0.037*	0.044**	0.034*
		(0.020)	(0.020)	(0.020)	(0.021)	(0.021)	(0.020)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District	0.014	0.013	0.009	0.012	0.020	0.013
		(0.020)	(0.020)	(0.020)	(0.020)	(0.021)	(0.020)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District	0.051***	0.051***	0.050***	0.050***	0.052***	0.052***
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
far_east,bigger_region_id	Reside in Far Eastern Federal District	0.059*	0.058*	0.051	0.059*	0.059*	0.056*
		(0.032)	(0.032)	(0.031)	(0.032)	(0.031)	(0.032)
fin_litrcy_22	Financial literacy index, average household	0.001*					
		(0.000)					
fin_litrcy_leader_22	Financial literacy index, average household		0.001*				
			(0.000)				
set_type_22	City residence			-0.017			
				(0.016)			
leader_high_edu_dummy_22	Higher educational attainment of household head				0.023		
					(0.024)		
members_20	Number of household members					-0.025***	
						(0.009)	
inter_inrate_income_20	Effect of interest rate and income interaction						0.000
							(0.000)
Observations		3,609	3,609	3,609	3,609	3,609	3,609
Wald Chi2		674.8	674.2	674.7	673.9	671.9	675.6
Prob>Chi2		0	0	0	0	0	0
Pseudo R2		0.195	0.194	0.194	0.194	0.196	0.194
AIC		3297	3,298	3,300	3,300	3,293	3,299
BIC		3,396	3,397	3399	3,399	3,392	3,398

Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values:
**** - p<0.01, ** - p<0.05, * - p <0.1*

APPENDIX 10

Estimated marginal effects of the model with exogenous variables, calculated as average for 2020–2022 + survey month dummy

Marginal effects in average regression values, decimal quantity in points (0.01 points = 1%)

Variable		Baseline regression	+ risk appetite	+ macroregion of residence	+ expectations as to economic outlook	+ propensity to save	+ expectations of change in financial position	+ financial inclusion
		(1)	(2)	(3)	(4)	(4.1)	(4.2)	(5)
interest_rate	Average loan rates offered by banks	**-0.019*** **	**-0.019*** **	**-0.017*** **	**-0.016** **	**-0.011**	**-0.015** **	**-0.023** **
		(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.009)
ln_money_inc_20	Logarithm of monthly income of household	0.016	0.016	0.021*	0.026**	0.027**	0.018	0.015
		(0.010)	(0.010)	(0.011)	(0.011)	(0.012)	(0.011)	(0.015)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.005***	0.005***	0.004***	0.004***	0.005***	0.004***	0.005***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.016*	0.016*	0.017*	0.018*	0.012	0.014	0.026**
		(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.012)
married_22	Marital status of household head	-0.005	-0.006	-0.007	-0.007	-0.004	-0.002	-0.010
		(0.014)	(0.013)	(0.014)	(0.014)	(0.015)	(0.014)	(0.019)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.010***	0.010***	0.010***	0.008**	0.006*	0.010***	0.013**
		(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.006)
average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed members in 2020–2022	0.086***	0.089***	0.084***	0.097***	0.105***	0.090***	0.111***
		(0.021)	(0.021)	(0.021)	(0.022)	(0.023)	(0.022)	(0.031)
		0.005	0.004	0.006	-0.000	0.007	0.005	-0.003

adults_high_edu_dummy_22	Higher educational attainment of at least one household member	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.014)	(0.019)
4.month	Survey run in April	0.028	0.024	0.002	0.003	0.044	-0.005	0.076
		(0.076)	(0.076)	(0.081)	(0.082)	(0.082)	(0.082)	(0.148)
5.month	Survey run in May	0.039	0.035	0.015	0.011	0.053	0.014	0.081
		(0.074)	(0.074)	(0.079)	(0.081)	(0.080)	(0.080)	(0.146)
6.month	Survey run in June	0.057	0.054	0.036	0.041	0.078	0.034	0.092
		(0.074)	(0.074)	(0.080)	(0.081)	(0.081)	(0.081)	(0.146)
7.month	Survey run in July	0.075	0.074	0.060	0.067	0.103	0.060	0.125
		(0.077)	(0.077)	(0.082)	(0.084)	(0.083)	(0.083)	(0.149)
8.month	Survey run in August	0.014	0.013	-0.006	0.005	0.049	-0.021	0.082
		(0.081)	(0.082)	(0.086)	(0.089)	(0.089)	(0.087)	(0.155)
9.month	Survey run in September	0.058	0.055	0.013	0.006	0.037	0.075	0.053
		(0.112)	(0.113)	(0.113)	(0.113)	(0.114)	(0.124)	(0.185)
risk_20	Willingness to take financial risks		0.037*	0.038*	0.036*	0.034	0.044**	0.054**
			(0.020)	(0.020)	(0.021)	(0.022)	(0.021)	(0.027)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District			0.010	0.015	0.008	0.006	0.018
				(0.020)	(0.021)	(0.023)	(0.021)	(0.029)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District			0.053***	0.059***	0.055***	0.063***	0.051**
				(0.014)	(0.015)	(0.016)	(0.015)	(0.021)
far_east,bigger_region_id	Reside in Far Eastern Federal District			0.049	0.029	0.008	0.057*	0.124**
				(0.030)	(0.030)	(0.032)	(0.032)	(0.049)
1.macro_oneyear_20	Household head's expectations of positive economic developments for next 12 months				-0.054**	-0.055**		
					(0.027)	(0.028)		
-1.macro_oneyear_20	Household head's expectations of negative economic developments for next 12 months				-0.009	-0.002		
					(0.014)	(0.015)		
1.pro_save_20_l20	Propensity to save					-0.040***		
						(0.015)		
1.wealth_exp_fcr_20_hh20	Expectations of improvements in financial position, average household						-0.008	
							(0.019)	
2.wealth_exp_fcr_20_hh20	Expectations of deterioration in financial						-0. 004	
							(0.015)	

	position, average household							
fin_acs_22	Financial inclusion index, average household							0.090**
								(0.038)
Observations		3,733	3,733	3,733	3,444	3,075	3,420	2,122
Wald Chi2		709	709.8	714.2	680.1	613.4	658.1	422.1
Prob>Chi2		0	0	0	0	0	0	0
Pseudo R2		0.193	0.194	0.198	0.205	0.208	0.197	0.176
AIC		3,452	3,451	3,442	3,175	2,833	3,166	2,242
BIC		3,558	3,563	3,572	3,316	2,978	3,307	2,367

Table continued

Variable		+ financial literacy, average household	+ financial literacy of household head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
		(6)	(7)	(8)	(9)	(10)	(11)
interest_rate	Average loan rates offered by banks	**-0.016****	**-0.016****	**-0.020*****	**-0.017*****	**-0.017*****	**-0.018*****
		(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)
ln_money_inc_20	Logarithm of monthly income of household	0.019*	0.019*	0.023**	0.021**	0.034***	0.015
		(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.018)
ln_total_liabilities_20	Logarithm of total liabilities of household	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_20	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_20_22	Average number of household members aged under 18 in 2020–2022	0.017*	0.017*	0.016*	0.017*	0.038***	0.017*
		(0.009)	(0.009)	(0.009)	(0.009)	(0.012)	(0.009)
married_22	Marital status of household head	-0.006	-0. 008	-0. 009	-0.006	0.003	-0. 007
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
average_adults_age_20_22	Average age of adult household members in 2020–2022	0.010***	0.010***	0.010***	0.010***	0.012***	0.010***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)

average_adults_age_20_22_sqrt	Average age of adult household members in 2020–2022 squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_20_22	Average share of employed for 2020–2022	0.079***	0.080***	0.085***	0.084***	0.063***	0.085***
		(0.021)	(0.021)	(0.021)	(0.021)	(0.023)	(0.021)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	0.001	0.002	0.007	-0.004	0.003	0.005
		(0.014)	(0.013)	(0.013)	(0.022)	(0.013)	(0.013)
4.month	Survey run in April	0.002	0.005	-0.001	0.000	0.004	0.001
		(0.081)	(0.081)	(0.081)	(0.081)	(0.082)	(0.081)
5.month	Survey run in May	0.016	0.018	0.014	0.014	0.016	0.015
		(0.079)	(0.079)	(0.080)	(0.080)	(0.080)	(0.079)
6.month	Survey run in June	0.037	0.039	0.037	0.035	0.038	0.036
		(0.080)	(0.079)	(0.080)	(0.080)	(0.080)	(0.080)
7.month	Survey run in July	0.062	0.062	0.059	0.058	0.059	0.059
		(0.082)	(0.081)	(0.082)	(0.082)	(0.083)	(0.082)
8.month	Survey run in August	-0.004	-0.004	-0.006	-0.008	-0.007	-0.007
		(0.086)	(0.086)	(0.087)	(0.087)	(0.087)	(0.086)
9.month	Survey run in September	0.013	0.011	0.016	0.010	0.019	0.012
		(0.114)	(0.113)	(0.114)	(0.113)	(0.115)	(0.114)
risk_20	Willingness to take financial risks	0.036*	0.037*	0.038*	0.039*	0.045**	0.037*
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District	0.013	0.018	0.008	0.011	0.018	0.011
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District	0.053***	0.054***	0.052***	0.053***	0.054***	0.053***
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
far_east,bigger_region_id	Reside in Far Eastern Federal District	0.051*	0.047	0.043	0.050	0.052*	0.049
		(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)
fin_litrcy_22	Financial literacy index, average household	0.001*					
		(0.000)					
fin_litrcy_leader_22	Financial literacy index, average household		0.001***				
			(0.000)				
set_type_22	City residence			-0. 020			
				(0.017)			
leader_high_edu_dummy_22	Higher educational attainment of household head				0.013		
					(0.023)		
members_20	Number of household members					-0.021**	
						(0.009)	
inter_inrate_income_20	Effect of interest rate and income interaction						0.000
							(0.000)

Observations	3,733	3,733	3,733	3,733	3,733	3,733
Wald Chi2	714.9	722	714.6	713.8	714.1	714.8
Prob>Chi2	0	0	0	0	0	0
Pseudo R2	0.198	0.200	0.198	0.198	0.199	0.198
AIC	3,440	3,433	3,442	3,444	3,437	3,444
BIC	3,577	3,570	3,579	3,580	3,574	3,581

Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values:
**** - p<0.01, ** - p<0.05, * - p <0.1*

APPENDIX 11

Estimated marginal effects of the models with future demand as a dependent variable without including the measure of inflation expectations, decimal quantity in points (0.01 points = 1%)

Variable		Baseline regression	+ risk appetite	+ macroregion of residence	+ expectations as to economic outlook	+ propensity to save	+ expectations of change in financial position	+ financial inclusion
		(1)	(2)	(3)	(4)	(4.1)	(4.2)	(5)
interest_rate	Average loan rates offered by banks	**-0.006****	**-0.006****	**-0.006*****	**-0.006****	**-0.008*****	**-0.005***	**-0.006***
		(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
ln_money_inc_22	Logarithm of monthly income of household	0.009**	0.007**	0.008**	0.008**	0.009**	0.009**	0.008
		(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.006)
ln_total_liabilities_22	Logarithm of total liabilities of household	0.000*	0.000*	0.000*	0.000	0.000	0.000*	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_22	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000*
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_22	Average number of household members aged under 18 in 2022	-0.004	-0.003	-0.003	-0.003	-0.004	-0.004	-0.005
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.005)
married_22	Marital status of household head	0.004	0.003	0.002	0.005	0.010*	0.004	0.011
		(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.007)
average_adults_age_22	Average age of adult household members in 2022	0.001	0.001	0.001	0.002*	0.003*	0.001	0.001
		(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
average_adults_age_22_sqrt	Average age of adult household members in 2022 squared	-0.000	-0.000	-0.000	-0.000**	-0.000**	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_22	Average share of employed in 2022	0.007	0.011	0.011	0.010	0.009	0.011	0.004
		(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.010)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	-0.003	-0.002	-0.002	-0.002	-0.001	-0.002	-0.001
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.007)
risk_22	Willingness to take financial risks		0.024***	0.022***	0.025***	0.027***	0.022***	0.026***
			(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.009)

south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District			0.007	0.011	0.012	0.005	0.005
				(0.008)	(0.009)	(0.010)	(0.009)	(0.011)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District			0.007	0.011*	0.013**	0.006	0.015*
				(0.005)	(0.006)	(0.006)	(0.006)	(0.008)
far_east,bigger_region_id	Reside in Far Eastern Federal District			-0.012	-0.015**	-0.016**	-0.015**	-0.018
				(0.008)	(0.007)	(0.007)	(0.007)	(0.011)
1,macro_oneyear_20_l22	Household head's expectations of positive economic developments for next 12 months				-0.017**	-0.019**		
					(0.008)	(0.008)		
-1,macro_oneyear_20_l22	Household head's expectations of negative economic developments for next 12 months				-0.003	-0.005		
					(0.005)	(0.006)		
1,pro_save_20_l22	Propensity to save					0.010*		
						(0.006)		
1,wealth_exp_fcr_20_hh22	Expectations of improvements in financial position, average household						0.001	
							(0.006)	
2,wealth_exp_fcr_20_hh22	Expectations of deterioration in financial position, average household						0.011*	
							(0.006)	
fin_acs_22	Financial inclusion index, average household							0.046**
								(0.018)
Observations		4,481	4,481	4,481	4,140	3,740	4,100	2,721
Wald Chi2		57.60	69.13	70.09	68.69	98.27	66.28	44.47
Prob>Chi2		1.03e-08	1,79e-10	1,86e-09	1,69e-08	0	4,44e-08	9,30e-05
Pseudo R2		0.0618	0.0743	0.0787	0.0872	0.104	0.0783	0.0687
AIC		1,032	1,021	1,022	960.7	880.6	961.1	787.1
BIC		1,103	1,098	1,118	1,068	992.7	1,069	881.6

Table 2 continued

Variable		+ financial literacy, average household	+ financial literacy of household head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
		(6)	(7)	(8)	(9)	(10)	(11)
interest_rate	Average loan rates offered by banks	**-0.005****	**-0.005****	**-0.006****	**-0.006*****	**-0.006*****	**-0.006****
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
ln_money_inc_22	Logarithm of monthly income of household	0.007**	0.007**	0.008**	0.007**	0.006	0.009**
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
ln_total_liabilities_22	Logarithm of total liabilities of household	0.000*	0.000*	0.000*	0.000**	0.000*	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_22	Logarithm of total assets of household	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_22	Average number of household members aged under 18 in 2022	-0.003	-0.003	-0.003	-0.002	-0.006	-0.003
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
married_22	Marital status of household head	0.002	0.002	0.002	0.001	0.001	0.005
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
average_adults_age_22	Average age of adult household members in 2022	0.001	0.001	0.001	0.001	0.001	0.001
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
average_adults_age_22_sqrt	Average age of adult household members in 2022 squared	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_22	Average share of employed in 2022	0.008	0.009	0.011	0.012*	0.014*	0.013*
		(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	-0.006	-0.005	-0.002	0.012*	-0.002	-0.002
		(0.005)	(0.005)	(0.005)	(0.007)	(0.005)	(0.005)
risk_22	Willingness to take financial risks	0.022***	0.022***	0.022***	0.022***	0.022***	0.024***
		(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District	0.009	0.009	0.008	0.007	0.006	0.009
		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District	0.007	0.007	0.007	0.007	0.007	0.010*
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
far_east,bigger_region_id	Reside in Far Eastern Federal District	-0.012	-0.012	-0.012	-0.013*	-0.013	-0.012*
		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)

fin_litrcy_22	Financial literacy index, average household	0.000**					
		(0.000)					
fin_litrcy_leader_22	Financial literacy index, average household		0.000**				
			(0.000)				
set_type_22	City residence			0.001			
				(0.006)			
leader_high_edu_dummy_22	Higher educational attainment of household head				-0.020***		
					(0.007)		
members_22	Number of household members					0.003	
						(0.003)	
inter_inrate_income_22	Effect of interest rate and income interaction						-0.000
							(0.000)
Observations		4,481	4,481	4,481	4,481	4,481	4,481
Wald Chi2		70.17	69.89	70.29	75.21	70.21	69.79
Prob>Chi2		4,17e-09	4,68e-09	3,97e-09	5,19e-10	4,09e-09	4,87e-09
Pseudo R2		0.0857	0.0837	0.0788	0.0848	0.0795	0.0790
AIC		1,016	1,019	1,024	1,017	1,023	1,024
BIC		1,119	1,121	1,126	1,120	1,126	1,126

Source: Authors' own calculations.

*Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values: *** - p<0.01, ** - p<0.05, * - p <0.1*

APPENDIX 12

Estimated marginal effects of the models of future demand as a dependent variable, decimal quantity (0.01 points = 1%)

Variable		Baseline regression	+ risk appetite	+ macroregion of residence	+ expectations as to economic outlook	+ propensity to save	+ expectations of change in financial position	+ financial inclusion
		(1)	(2)	(3)	(4)	(4.1)	(4.2)	(5)
interest_rate	Average loan rates offered by banks	**-0.007*** **	**-0.008*** **	**-0.007** **	**-0.006** **	**-0.009*** **	**-0.007** **	**-0.006**
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
ln_money_inc_22	Logarithm of monthly income of household	0.020***	0.018***	0.020***	0.020***	0.022***	0.019***	0.024***
		(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.007)
ln_total_liabilities_22	Logarithm of total liabilities of household	0.000**	0.000**	0.000*	0.000	0.000*	0.000	0.000*
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_22	Logarithm of total assets of household	-0.000***	-0.000**	-0.000***	-0.000**	-0.000***	-0.000**	-0.001***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_22	Average number of household members aged under 18 in 2022	-0.000	0. 001	0. 001	0. 001	-0.000	-0.000	0. 001
		(0.004)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.005)
married_22	Marital status of household head	0.005	0. 004	0.003	0. 006	0.012*	0. 007	0.011
		(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.009)
average_adults_age_22	Average age of adult household members in 2022	0. 001	0. 001	0. 001	0.002	0.003*	0. 001	0. 001
		(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)
average_adults_age_22_sqrt	Average age of adult household members in 2022 squared	-0.000	-0.000	-0.000	-0.000**	-0.000**	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_22	Average share of employed in 2022	0.016*	0.020**	0.019**	0.018**	0.015	0.021**	0.017
		(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.013)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	-0.006	-0.005	-0.006	-0.006	-0.006	-0. 008	-0. 009
		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.008)

risk_22	Willingness to take financial risks		0.028***	0.028***	0.030***	0.032***	0.020**	0.038***
			(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.011)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District			-0.001	0.002	0.003	0. 004	-0. 012
				(0.009)	(0.009)	(0.010)	(0.009)	(0.012)
priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District			0.013*	0.018**	0.022***	0.019**	0.021**
				(0.007)	(0.007)	(0.008)	(0.007)	(0.010)
far_east,bigger_region_id	Reside in Far Eastern Federal District			-0.015	-0.017*	-0.023***	-0.023***	-0.018
				(0.010)	(0.009)	(0.008)	(0.007)	(0.017)
1,macro_oneyear_20_l22	Household head's expectations of positive economic developments for next 12 months				-0.024**	-0.026**		
					(0.010)	(0.011)		
-1,macro_oneyear_20_l22	Household head's expectations of negative economic developments for next 12 months				-0. 008	-0. 010		
					(0.006)	(0.007)		
1,pro_save_20_l22	Propensity to save					-0. 004		
						(0.007)		
1,wealth_exp_fcr_20_hh22	Expectations of improvements in financial position, average household						0.012	
							(0.009)	
2,wealth_exp_fcr_20_hh22	Expectations of deterioration in financial position, average household						0.013*	
							(0.007)	
fin_acs_22	Financial inclusion index, average household							0.060***
								(0.021)
Observations		4,481	4,481	4,481	4,140	3,744	3,416	2,721
Wald Chi2		102.9	111.4	111	100.9	119.8	89.58	67.39
Prob>Chi2		0	0	0	0	0	0	1,30e-08
Pseudo R2		0.0902	0.0989	0.104	0.110	0.127	0.123	0.0865
AIC		1,349	1,339	1,337	1,251	1,152	962.5	1,045
BIC		1,420	1,416	1,433	1,358	1,264	1,067	1,140

Table 2 continued

Variable		+ financial literacy, average household	+ financial literacy of household head	+ locality type	+ higher educational attainment of household head	+ household size	+ effect of rate and income interaction
		(6)	(7)	(8)	(9)	(10)	(11)
interest_rate	Average loan rates offered by banks	**-0.005***	**-0.006****	**-0.006****	**-0.007****	**-0.007****	**-0.007****
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
ln_money_inc_22	Logarithm of monthly income of household	0.019***	0.019***	0.019***	0.019***	0.018***	0.019***
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.007)
ln_total_liabilities_22	Logarithm of total liabilities of household		0.000*	0.000**	0.000**	0.000**	0.000*
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln_total_assets_22	Logarithm of total assets of household	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
children_22	Average number of household members aged under 18 in 2022	0.001	0.001	0.001	0.002	-0.002	0.001
		(0.004)	(0.004)	(0.003)	(0.003)	(0.005)	(0.003)
married_22	Marital status of household head	0.003	0.002	0.003	0.002	0.001	0.003
		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
average_adults_age_22	Average age of adult household members in 2022	0.001	0.001	0.001	0.001	0.001	0.001
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
average_adults_age_22_sqrt	Average age of adult household members in 2022 squared	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
share_of_employed_22	Average share of employed in 2022	0.015*	0.018**	0.019**	0.020**	0.022**	0.019**
		(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
adults_high_edu_dummy_22	Higher educational attainment of at least one household member	-0.010	-0.008	-0.006	0.008	-0.005	-0.006
		(0.006)	(0.006)	(0.006)	(0.009)	(0.006)	(0.006)
risk_22	Willingness to take financial risks	0.028***	0.029***	0.028***	0.028***	0.027***	0.028***
		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
south_ccs,bigger_region_id	Reside in Southern or North Caucasian Federal District	0.001	0.002	0.000	-0.001	-0.002	-0.001
		(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
		0.013*	0.013*	0.013*	0.013*	0.012*	0.013*

priv_ural_sib,bigger_region_id	Reside in Volga, Urals or Siberian Federal District						
		(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
far_east,bigger_region_id	Reside in Far Eastern Federal District	-0.015	-0.016	-0.015	-0.017*	-0.016	-0.015
		(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
fin_litrcy_22	Financial literacy index, average household	0.000***					
		(0.000)					
fin_litrcy_leader_22	Financial literacy index, average household		0.000***				
			(0.000)				
set_type_22	City residence			0.005			
				(0.008)			
leader_high_edu_dummy_22	Higher educational attainment of household head				-0.018**		
					(0.009)		
members_22	Number of household members					0.003	
						(0.004)	
inter_inrate_income_22	Effect of interest rate and income interaction						0.000
							(0.000)
Observations		4,481	4,481	4,481	4,481	4,481	4,481
Wald Chi2		112.3	112.7	111.3	113	110.9	111.4
Prob>Chi2		0	0	0	0	0	0
Pseudo R2		0.110	0.109	0.104	0.107	0.104	0.104
AIC		1,330	1,331	1,339	1,335	1,338	1,339
BIC		1,432	1,434	1,441	1,438	1,441	1,442

Source: Authors' own calculations.

*Note: The standard errors are shown in parentheses; the asterisks show that the following conditions are met by p-values: *** - p<0.01, ** - p<0.05, * - p <0.1*