



# Cohort consumption in the Russian Federation

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## Abstract

The current demographic situation in both developed and developing countries is characterized by an aging population. From an economic perspective, this phenomenon holds practical significance for studying anticipated changes in the structure of state budget revenues and expenditures, as well as alterations in the overall consumption of goods and services. This paper investigates the spending patterns of different generations in the Russian Federation. In foreign literature, there is an observed increase in consumption with each successive generation compared to its predecessor. This trend is commonly attributed to declining fertility rates, the accumulation of capital by one generation, and its subsequent transfer to the next. Consequently, the younger generation tends to possess more capital than their forebears. The level of consumption across generations is also influenced by the life expectancy of the population; an extension of healthy life expectancy enables individuals to remain active in the workforce beyond retirement age.

Utilizing data from the Russian Longitudinal Monitoring Survey (RLMS), HSE conducts cohort consumption estimates for the years 2000–2020, categorized into five-year age groups. The study results indicate an increase in consumption levels beyond the age of 50 for cohorts born between 1930 and 1955. Conversely, for cohorts born between 1960 and 1999, the consumption levels below the age of 50 remained relatively unchanged.

## Keywords

cohort consumption in Russia, consumption in Russia, age-related consumption

**JEL codes:** J11, E21

## Introduction

An increase in life expectancy, a rise in the retirement age, and a decline in fertility contribute to a transformation in the economic life cycle of individuals. The extended life expectancy, encompassing healthy years, enables the population to remain in the workforce beyond the

official retirement age limits. This allows for the continuation of labor income, fostering savings, and facilitating investments at later stages of life. Moreover, the prolonged life expectancy creates opportunities for savings during pre-retirement years and encourages investments to support future consumption. As children grow up, receive an education, and join the labor market, parents in their pre-retirement age strategically invest in assets that ensure the maintenance of their accustomed level of consumption in the future.

Households operate within a finite time horizon. According to Barro's theory, parents, in their role as providers, consider their children's consumption utility to achieve equality in overall consumption. Additionally, parents may choose to transfer a portion of their property to their children during their lifetime, aiming to alleviate the tax burden, depending on the fiscal policies of the state.

This theoretical framework lays the groundwork for a hypothesis that, in the context of declining fertility, the increased consumption of older generations can potentially contribute to the heightened consumption of younger generations. If the older generation prioritizes supporting their children, inheritance recipients from younger generations will have a higher capital per capita than their predecessors. This increased capital can facilitate higher levels of consumption.

From a research perspective, it is crucial to examine consumption indicators that characterize the standard of living of the population and shape the demand for goods and services. These considerations are particularly relevant to Russia, allowing for the formulation of a hypothesis predicting the growth of consumption levels in each successive generation.

The inter-generational comparison of consumption levels holds paramount importance in forecasting aggregate consumption indicators. It is crucial to note that conducting intergenerational research poses certain challenges due to specific intricacies. To draw meaningful conclusions about the comparison of consumption levels across different generations, access to a long-term dynamic data series is imperative. Typically, household budget surveys serve as the primary source of consumption data. These surveys, however, often focus on the household as a whole rather than individual members, adding an additional layer of complexity to the assessment of intergenerational consumption. The primary objective of this study is to evaluate the population's consumption levels based on their generational affiliation.

## Literature review

As mentioned earlier, cohort studies are infrequent, primarily attributed to the scarcity of long-term longitudinal surveys. Consequently, there is a limited body of research on cohort consumption in both Russian and foreign literature. Existing foreign studies on cohort consumption consistently suggest an increase in consumption for each subsequent cohort, albeit at varying rates. Typically, the comparison of consumption levels between generations relies on indicators such as consumption volumes, prices of the base year, or relative values concerning the average for the 30-49 age group, representing the most economically active segment of the population.

The examination of intergenerational income differences in France is detailed in the work of d'Albis et al. (2017). Notably, it was only in 1979 that the age profile of labor income resembled the profiles observed in Russia. In that year, the peak of labor income in France occurred within the age range of 30-40 years, primarily among individuals born during

and immediately after the war, followed by a gradual decline. Subsequently, there was a discernible shift in the age profile of labor income. By 1989, the peak income age had shifted to 40–45 years, and by 2000, it extended to 45–50 years. In 2011, the age of maximum income remained unchanged compared to 2000. The authors highlight a rapid increase in labor income between the ages of 20 and 35, with continued growth until the age of 45, albeit at a slower pace.

Beyond the age of 54, labor income experiences a sharp decline, as observed by the authors in their study. They noted a consistent increase in average income at each age for successive cohorts. Notably, there is a convergence in age profiles for the cohorts born in 1920, 1930, and 1940 at ages 60–65, while the curve for the 1950 cohort shifts to the right. The authors attribute this shift to a later departure from the labor market, resulting in an increase in average labor income during pre-retirement ages. Against the backdrop of rapid labor income growth for cohorts spanning from 1930 to 1950, there is a notable cessation of growth for the 1950 and 1960 cohorts. Interestingly, the labor income profiles for these generations are identical before the age of 40. Growth in labor income for the last generation resumes only after the age of 40. While later generations also exhibit a positive trend in increasing labor income, the growth rate is slower compared to the cohorts of 1940–1950.

The article by d'Albis and Badji (2017) investigates the impact of generational affiliation on consumption indicators in France spanning the period from 1979 to 2011 for individuals aged 20–64. The authors identify age-related consumption patterns and note differences in consumption levels among cohorts. The consumption levels of cohorts are found to be influenced by events occurring during specific life stages. The study's results reveal that the consumption level of the 1946 cohort was, on average, 40% higher than that of the 1926 cohort and 20% lower than the average consumption level of the 1976 cohort.

Examining well-being in relation to age, the authors conclude that consumption tends to increase with age. Additionally, cohort effects are evident in consumption trends, with a substantial improvement in the standard of living observed for generations born after World War II compared to pre-war generations. Subsequent generations also exhibit a tendency to consume more, although not to the same extent.

Financial organizations' data offers substantial potential for studying cohort characteristics of consumption, as highlighted in (Josephson 2023). The author notes that having debt in the pre-retirement age may influence the timing of retirement. Furthermore, the types of consumer goods for which loans are taken vary with the age of the consumer. For instance, at younger ages, significant loans often go towards education costs, while in the 35–49 age group, the primary debt is related to mortgage repayment. Beyond the age of 50, loans are more commonly taken for various other purposes. Another relevant perspective from (Leonhardt 2018) emphasizes differences in creditworthiness across generations. The baby boomer generation, for instance, carries more debt than their predecessors but also possesses smaller savings. Experts suggest that this financial dynamic may lead the baby boomer generation to delay retirement.

According to a survey conducted by the Northwestern Mutual agency in 2018, nearly 80% of Americans express concerns about consumption in retirement. This apprehension stems from the fact that over 20% of Americans lack retirement savings, and a third of the pre-retirement baby boomer generation possesses notably low savings (Northwestern Mutual 2018). Consequently, it can be inferred that the decline in consumption in older ages is a consequence of insufficient savings and a lack of income-generating assets.

In contrast, younger age groups are more prone to taking out consumption loans. However, having a loan during retirement age tends to delay the actual retirement date. As a result, supporting consumption in older ages becomes contingent on transfers from younger generations and leveraging existing assets to generate income.

A comprehensive review of the literature leads to the conclusion that the level of consumption in young working-age individuals consistently increases from generation to generation. However, the primary focus of the study is to understand the reasons behind this consumption growth. An examination of American literature indicates that the rise in consumption levels is often attributed to increased borrowing. Notably, indebtedness to banking organizations during the pre-retirement age acts as a deterrent, preventing Americans from retiring on time and consequently shifting the retirement age.

To date, Russian literature has predominantly featured studies conducted by banking organizations exploring the nuances of generational consumption, with notable contributions from SberCIB. Leveraging «big data» and the «Ivanov Consumer Index,» the study delves into the peculiarities of generational consumption, identifying distinct cohorts such as Generation Z (born 1997-2012), Generation Y (born 1981-1996), and Generation X (born 1965-1980).

The primary findings suggest that by 2030, consumption trends will be significantly influenced by the smaller Generation Z. Interestingly, Generation Z exhibits a preference for renting property rather than making outright purchases, indicating a potential shift towards an economy of shared consumption. For instance, Generation Z is more inclined to rent cars, in contrast to Generation X, which tends to prefer car ownership. This observation has implications for predicting the trajectory of shared consumption trends in the economy.

It is essential to acknowledge the drawbacks associated with conducting research based on banks' «big data.» Typically, these datasets lack crucial information about the marital status and household composition of respondents, introducing potential distortions in the results that may contradict common sense. For instance, representatives of Generation Z might still reside with their parents, who are responsible for expenses such as food and utilities. The cohabitation of different generations in a single household can distort conclusions about generational and age-related consumption. Therefore, there is a pressing need for research methodologies that rely on household budget surveys and employ methods to redistribute consumption levels based on household characteristics.

In Russia, analyses exploring the influence of demographic structures on economic indicators are available in various works, including (Gimpelson & Zinchenko 2019; Denisenko & Kozlov 2018; Kalabikhina & Shaikenova 2018; Mironova 2016; Nazarova 2019) and others.

## Data and methods

The primary data source for this study is the Russian Longitudinal Monitoring Survey conducted by NRU HSE. It's crucial to highlight that although the monitoring has been ongoing since 1994, the period selected for panel studies is from 2000 onward. This choice is attributed to the improved quality of data collection on household expenditure variables during this period. In the samples collected before 2009, a minimum of 60 respondents answered questions about income and consumption in each one-year age interval. Subsequently, in samples collected after 2010, this threshold was increased to a minimum of 100 respondents per age interval.

It's noteworthy that while there are no age restrictions in the RLMS samples, the number of respondents over the age of 80 is relatively small. This limitation results in significant fluctuations in age-related indicators when constructing age profiles. Therefore, the study's sample will encompass respondents aged 0 to 80 years to ensure a more stable and reliable analysis of age-related trends.

The study incorporated both individual and household samples, with the individual sample containing information on socio-demographic characteristics such as year of birth, age, gender, education, and place of residence. Depending on the survey wave, this sample ranged from 9.2 thousand to 16.8 thousand respondents. The gender ratio across the years remained relatively stable, with an average of about 46% men and 54% women observed in the samples.

Among the respondents, two-thirds belonged to the urban population, while the remaining participants resided in urban-type settlements<sup>1</sup> and rural areas. Notably, there was a substantial increase in the proportion of respondents with higher education. For instance, in 1994, only 12% of respondents had higher education, whereas in 2018, this figure had risen by 10 percentage points, as illustrated in Table 1. This shift underscores the evolving educational landscape over the surveyed period.

**Table 1.** Characteristics of respondents in the individual RLMS sample by year

	1994	1998	2002	2006	2010	2014	2018
Respondents, thousand people	11.3	9.6	9.2	10.7	16.8	12.9	12.1
Men, %	46.7	46.7	46.7	46.6	46.6	46.2	43.3
Women, %	53.3	53.3	53.3	53.4	53.4	53.8	56.7
Share of those with higher education, %	12.0	11.6	13.2	15.9	18.4	20.5	22.3
Urban residents, %	68.0	66.6	67.1	67.5	67.0	66.9	66.8
Rural residents, %	32.0	33.4	32.9	32.5	33.0	33.1	33.2

*Source:* author's calculations based on RLMS data

In accordance with the National Transfer Accounts (NTA) concept proposed by R. Lee and A. Mason (United Nations 2013), the categorization of consumption includes both private and public components. Notably, estimating public consumption by age proves challenging based on sample household surveys, mainly because public consumption is typically funded through public funds. For instance, public consumption of education is concentrated in young ages, while the demand for public health services tends to emerge in older age groups. The assessment of public education services consumption can be conducted by examining the age distribution of students across educational levels and utilizing data on public spending on education. However, evaluating the consumption of public health services is more challenging due to the absence of statistical data on medical care requests.

<sup>1</sup> The paper makes the assumption that households in urban-type settlements may operate a personal subsidiary farm (PSF), a practice more common in rural areas. Since the study does not assess goods obtained in kind or grown on private farms, there is a possibility of distortion in the measurement of "urban" consumption.

In line with the NTA concept, private consumption is further categorized into specific groups, encompassing:

- personal expenses for education;
- personal healthcare expenses;
- other household expenses (expenditure on food, clothing, household appliances, utility bills, purchase of motor vehicles, etc.).

Within the RLMS samples, information regarding household expenditures on various categories, such as food, durable goods, services, utility bills, and both received and transferred transfers, is available. Additionally, health care expenditure is covered in both individual and household samples. However, when studying health care expenditure, preference is given to the individual sample. The individual sample is particularly valuable in understanding health care expenditure since it allows for a more nuanced consideration of age-specific and gender-specific factors. Notably, literature (Pautova & Pautov 2015), highlights significant gender differences in health care expenditure, with women, on average, spending more on medicine than men. While obtaining health care expenditure data from individual samples offers a more accurate reflection of gender and age factors, it is essential to acknowledge potential overestimation. Factors such as compensation by insurance companies or tax deductions received after the service provision can influence the accuracy of the data, introducing considerations for a comprehensive and nuanced analysis.

Our study specifically concentrates on private consumption, excluding health care and education expenditures. To integrate the samples by household and by individual, we employed the identification variable of the family number. Following the NTA concept proposed by the United Nations in 2013, we calculated the ratio of household consumption to individual consumption. In line with the NTA (United Nations 2013) concept, we determined the age-based share of consumption within a household. According to this approach, authors propose to determine the share of consumption in a household according to age: individuals from birth to 4 years are considered to consume 0.4 of an adult's consumption, with consumption increasing linearly from ages 5 to 19. From 20 years onward until the end of life, the consumption ratio is considered to be 1. This distribution of consumption from the household to individuals can be expressed through a formula:

$$\alpha(a) = 1 - 0.6 \cdot D(4 < a < 20) \cdot \left( \frac{20 - a}{16} \right) - 0.6 \cdot D(a \leq 4) \quad (1.1)$$

Following the recommendations of the NTA concept, we selected variables characterizing private consumption, organizing them into three distinct groups of individual consumption. It's important to note that questions about household consumption remained consistent throughout the period under review. However, to account for the widespread use of cellular communications and the Internet, questions related to expenditures on these services were incorporated into the questionnaires starting from 2006. The consumption groups, as defined by the Rosstat methodology, can be categorized as follows:

- Food expenditure: encompassing food consumption, including eating out (61 variables);
- Non-food expenditure: covering expenses on clothing, household appliances, durable goods, and household items (15 variables);
- Services: including expenditures on services such as fuel, transport, communications, and tickets (16 variables), as well as utilities (2 variables).

Private consumption was individually calculated for each person in the sample, and average labor income and consumption were determined for each age range. Following the recommendations of the National Transfer Accounts (NTA), the resulting age profiles were smoothed using the Friedman method. Notably, age consumption profiles were smoothed from the age of 1 year to preserve the «peak» consumption characteristic of newborns in most countries. In the smoothing process, data on labor income were smoothed between the ages of 20 to 65 years, while for aggregate incomes, smoothing occurred without an upper age limit. In estimating private consumption at the household level, expenditures for each consumption group were calculated separately, and then the expenses were aggregated. Notably, when considering the aggregate profiles of private consumption, smoothing was applied at the final stage, whereas for consumption by specific groups, smoothing occurred at each stage of the calculation. This meticulous approach ensures a comprehensive and accurate analysis of consumption profiles at both individual and aggregate levels.

The household sample includes specific features for the variables used in calculating consumption. Notably, since 1994, there has been a substantial increase in the consumption of services. For instance, in the 2000s, variables were introduced to capture the consumption of mobile communications, internet services, as well as cable and satellite television services.

Addressing the crucial issue of comparing financial indicators across different years, the study opts to normalize profiles relative to the average values observed at the ages of 30–49 years. This approach eliminates the need to convert monetary units to prices of a single year, as the primary focus of the study is to identify age-related characteristics.

In conducting a cohort analysis of private consumption, the study considers five-year cohorts, starting from the cohort born in 1930–1934 and concluding with the cohort born in 1990–1999. Consequently, the paper provides a comprehensive analysis encompassing 14 cohorts over the period from 2000 to 2020. This strategic cohort selection allows for a thorough examination of age-related trends in private consumption over the specified timeframe.

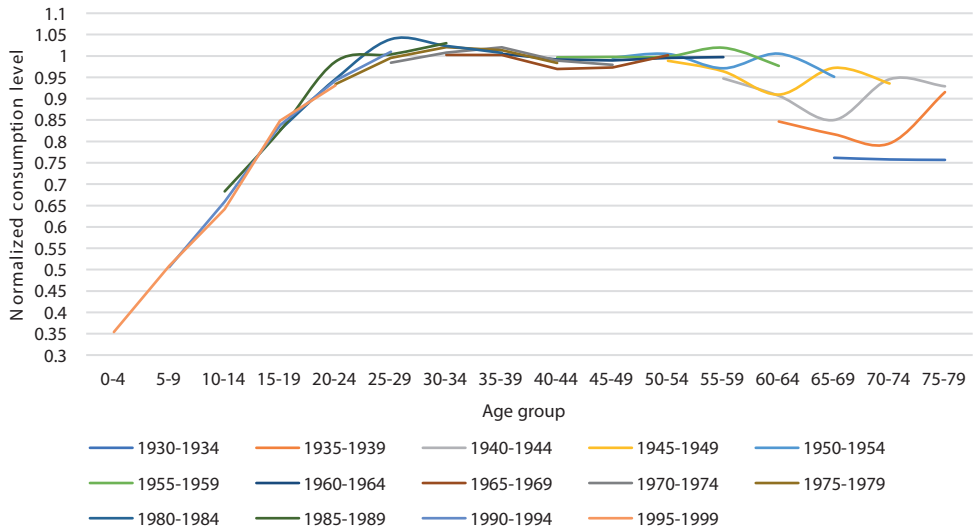
## Results

The comparison of private consumption profiles by age group is constrained to no more than five 5-year-old cohorts simultaneously, primarily due to the length of the series and specific database constraints. Figure 1 illustrates cohort consumption profiles by five-year age groups.

Noteworthy changes in the level of consumption are observed for cohorts older than 1955–1959. Conversely, for younger cohorts, the level of consumption exhibits insignificant differences, with deviations among cohorts attributed to the initial statistical data smoothing and statistical error. The observation period from 2000 to 2020 encompasses various economic and demographic shifts, including the surge in oil prices, the global financial crisis of 2008, and the 2020 COVID-19 pandemic, which led to restrictions on the service sector.

The derived age profiles facilitate conclusions about the impact of the COVID-19 pandemic on generational consumption. The most pronounced changes are evident for cohorts born between 1930 and 1955. While each subsequent cohort typically increases the level of consumption within the same age group compared to the previous cohort, the trend shifts for the 1940–1950 cohorts, which experienced a decrease. Interestingly, cohorts born in 1955–1959 and 1960–1964, during the working ages of 60–64 and early retirement at 65–69,

exhibited a more significant decrease in consumption levels than cohorts born in 1945-1949 and 1940-1944 at ages 65-69. However, the cohort born in 1930-1934 maintained a consistent level of consumption, and the cohort born in 1935-1939 recorded an increase in consumption relative to the 30-49 age group. The decrease in consumption for cohorts born in 1940-1944 and 1945-1949 at ages 55-59 and 60-64 is attributed to the measures taken to limit the spread of COVID-19, particularly advising elderly individuals to stay at home and work remotely.



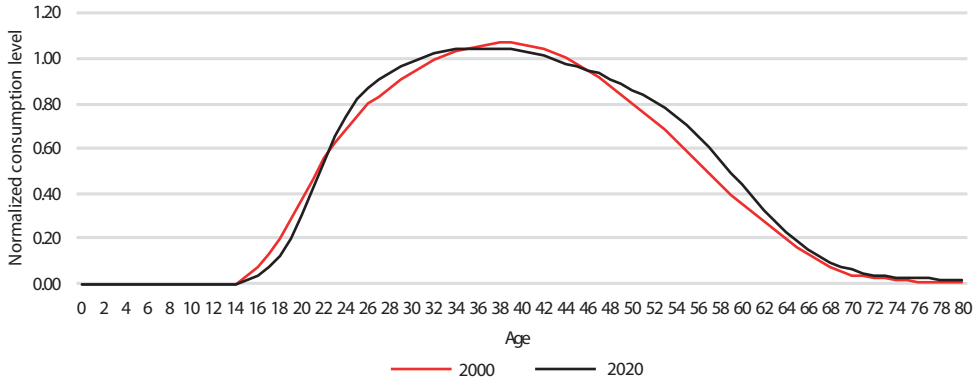
**Figure 1.** Normalized consumption by cohort, 2000-2020. *Source:* author’s calculations based on RLMS data

The rise in the level of consumption in older ages is further elucidated by demographic considerations. According to Rosstat, Russia has experienced an increase in the life expectancy of its population, surging from 65.3 years in 2000 to 73.3 years in 2019. However, in 2020, due to the impact of COVID-19, life expectancy temporarily decreased to 71.5 years. This upward trend in life expectancy was one of the factors contributing to the pension reform implemented in 2018. Hence, the qualifying age for full pension benefits will rise from 55 years in 2019 to 60 years by 2028 for women and from 60 years to 65 years by 2028 for men. As a consequence of the extended life expectancy, there is now an opportunity for individuals to continue working beyond the traditional retirement age. This is substantiated by data on age-related labor income, as depicted in Figure 2. The impact is particularly notable for individuals aged over 50. For instance, at the age of 50 in 2000 (representing the generation born in 1950), the level of labor income was 0.80 of the average labor income at ages 30-49. In 2020, at the same age (representing the generation born in 1970), this figure increased to 0.86. Similarly, at the age of 60, the level of labor income in 2000 was 0.36 of the average income of the 30-49 age group, while in 2020, the corresponding indicator reached 0.44 of the consumption of the 30-49 age group.

The disparity in consumption levels relative to the 30-49 age group diminishes after the age of 63, observed in the generation born in 1937 in 2000 and the generation born in 1957 in 2020, averaging 0.02.



In comparison to the year 2000, there is a delayed entry into the labor market in 2020, primarily attributable to an extended period of higher education. Notably, this shift is accompanied by a less pronounced peak in the level of labor income over the course of individuals' careers.



**Figure 2.** Normalized labor income in 2000 and 2020, considering individuals aged 30–49 years. *Source:* author's calculations based on RLMS data

Economic and demographic factors contribute to the observed growth in consumption within the cohorts of 1930–1955. Meanwhile, cohorts younger than 1970 exhibit no significant changes in the level of consumption.

## Conclusions

A survey of existing research reveals variations in consumption levels between generations across different countries. For instance, in France, each successive generation tends to consume more than its predecessor, although the growth rates differ. Studies in the United States emphasize the need to explore financing mechanisms for escalating consumption, often accompanied by increased borrowing. This trend poses challenges, as individuals approaching retirement age find it challenging to repay accumulated debts without sufficient savings, hindering their ability to retire.

In Russia, an examination of generational consumption based on bank data from Sber indicates divergent consumption levels among generations. Notably, Generation Z shows a preference for renting rather than ownership, extending to various assets such as cars and apartments. This distinctive behavior of Generation Z contributes to the emergence of a shared consumption economy. However, it's crucial to note that banks' «big data» on household spending may not capture the complete household composition, potentially leading to distorted results. Therefore, there is practical interest in studying consumption levels based on survey data.

For this study, data from the Russian Longitudinal Monitoring Survey conducted by the Higher School of Economics were utilized. Being one of the longest-running surveys in Russia, spanning a 20-year period (2000–2020), it allowed for a detailed exploration of consumption peculiarities across 14 cohorts born from 1930 to 1999.

The study revealed significant differences in consumption levels between generations, particularly noticeable at the ages of 60 and older for cohorts born from 1930–1934 to

1955-1959. A prevailing trend was the gradual increase in consumption relative to the age group of 50-54 years, with each successive cohort exhibiting higher consumption levels at comparable ages. However, this trend experienced a reversal in 2020, marked by enforced restrictions on economic activities due to the COVID-19 pandemic. In 2020, the consumption level of each cohort born in 1944-1955 was lower than the consumption level of the preceding cohort, indicating the impact of the pandemic on consumption patterns.

Future research will delve into avenues for financing consumption, specifically examining lending practices, savings strategies, and investment patterns.

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## Appendix 1. The composition of variables for analysis

№	Name of the consumption group	Variable costs include:
1	Food products	White bread; black bread; rice, other cereals; flour; pasta; potatoes; canned vegetables without pickles; cabbage, including pickled; cucumbers, including pickles; tomatoes, including salted; beets, carrots and other root vegetables; onions, garlic; zucchini, pumpkins and the like; other vegetables; watermelons, melons, including salted and dried; watermelons, melons, including salted and dried; canned fruit and berries; fresh berries; fresh fruits; dried fruits and berries; nuts, seeds; canned meat; beef, veal; lamb, goat meat; pork; offal: liver, kidneys and so on; poultry; lard, other animal fats; sausages, smoked meats; semi-finished meat products; canned milk, milk powder; milk, except dry; fermented milk products: kefir, yogurt and others; sour cream, cream; animal butter; cottage cheese, cheese mass; cheese, feta cheese; ice cream; vegetable oil; margarine; sugar; sweets, chocolate; jam; honey; biscuits, cakes, waffles, gingerbread, muffins; eggs; fish, fresh and frozen, salted dried, semi-finished fish; canned fish; seafood; semi-finished products, not including meat and fish; ready cooking; tea; coffee, coffee drinks, cocoa; soft drinks, juices; salt, other spices, various sauces; mushrooms; vodka; wines, other alcoholic beverages; beer; tobacco products; chewing gums, lozenges; eating out.
2	Non-food products	Sports equipment: bicycle, scooter, skates; books, textbooks, teaching aids, stationery; household appliances: refrigerator, washing machine, vacuum cleaner, sewing machine, iron, food processor and the like; home furnishings: furniture, carpets and more; mobile phone; cultural goods: TV, tape recorder, video, musical instruments, computer, camera and the like; clothes and shoes for children, that is, for household members under 18 years old; clothes and shoes for adults, that is, for household members 18 years old and older, Fuel for refueling vehicles, engines, generators; firewood, coal, peat, kerosene; bottled gas; car or minibus; motorcycle, scooter and the like; garage; repair and construction services for housing, buildings; building materials, repair materials, repair of a car, motorcycle, including the purchase of spare parts; seeds, fertilizers, feed, hiring machinery, labour, other; detergents, for example household soap, washing powder and others; personal hygiene products, such as toilet soap, shampoo, toothpaste, toilet paper, napkins, diapers, pads; cosmetics and perfumes.

№	Name of the consumption group	Variable costs include:
3	Services	Transport services: local, long-distance; sewing and repair of clothes, shoes; laundry, dry cleaning, baths, hairdressing; postal and telegraphic services, including long-distance telephone calls; mobile cellular services; Internet services; cable and satellite TV services; tickets: to the theater, circus, cinema, concerts, to cultural parks and other entertainment events, payment for an apartment, including rent, and utilities, minus subsidies and benefits.

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