

An Analytical Report

of the National Transfer
Accounts for Serbia



An Analytical Report of the National Transfer Accounts for Serbia 2019

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List of abbreviations

ESA	European System of Accounts
ESSPROS	European System of Integrated Social Protection Statistics
EU	European Union
GFS	General Financial Statistics
HBS	Household Budget Survey
LCD	Life Cycle Deficit
LCS	Life Cycle Surplus
NA	National accounts
NTA	National transfer accounts
SILC	Survey on Income and Living Conditions
SORS	Statistical Office of the Republic of Serbia
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund

Introduction

The world population is undergoing profound changes in its age distribution, as many nations are experiencing the demographic transition from high to low fertility and mortality. The corresponding changes in the population age structure have numerous economic consequences, presenting opportunities and challenges for development and for policymakers (UN, 2013).

In the span of years from the previous **census of Population for Serbia in 2011** to 2019, the percentage of the working-age population (15–64 years) decreased from **68.3%** to **65%**. According to the official projections by the Statistical Office of the Republic of Serbia, it is expected to further decrease to **63%** over the next 20 years (according to the last Census of Population conducted in 2022 this share had already decreased to **63.5%**). In the same period, the proportion of older persons aged 65 years and over is expected to increase from **17.2%** to **25.2%**, while the proportion of children aged under 15 years is expected to decline from **14.4%** in 2011 to **11.7%** in 2041.

Serbia's population is ageing due to its long-term **low total fertility rate** (less than **1.5%** on average over the last decade) and the increase in life expectancy. This is reflected in the shape of the population pyramid, where the bottom bars are narrower and the top bars are wider than a standard pyramid. *Figure 1*, showing the actual age profile in 2011 and 2019 and the projected age profile in 2041, indicates that the relative size of the working-age population will decline and the population of ages 80 and over will increase substantially in the coming decades.

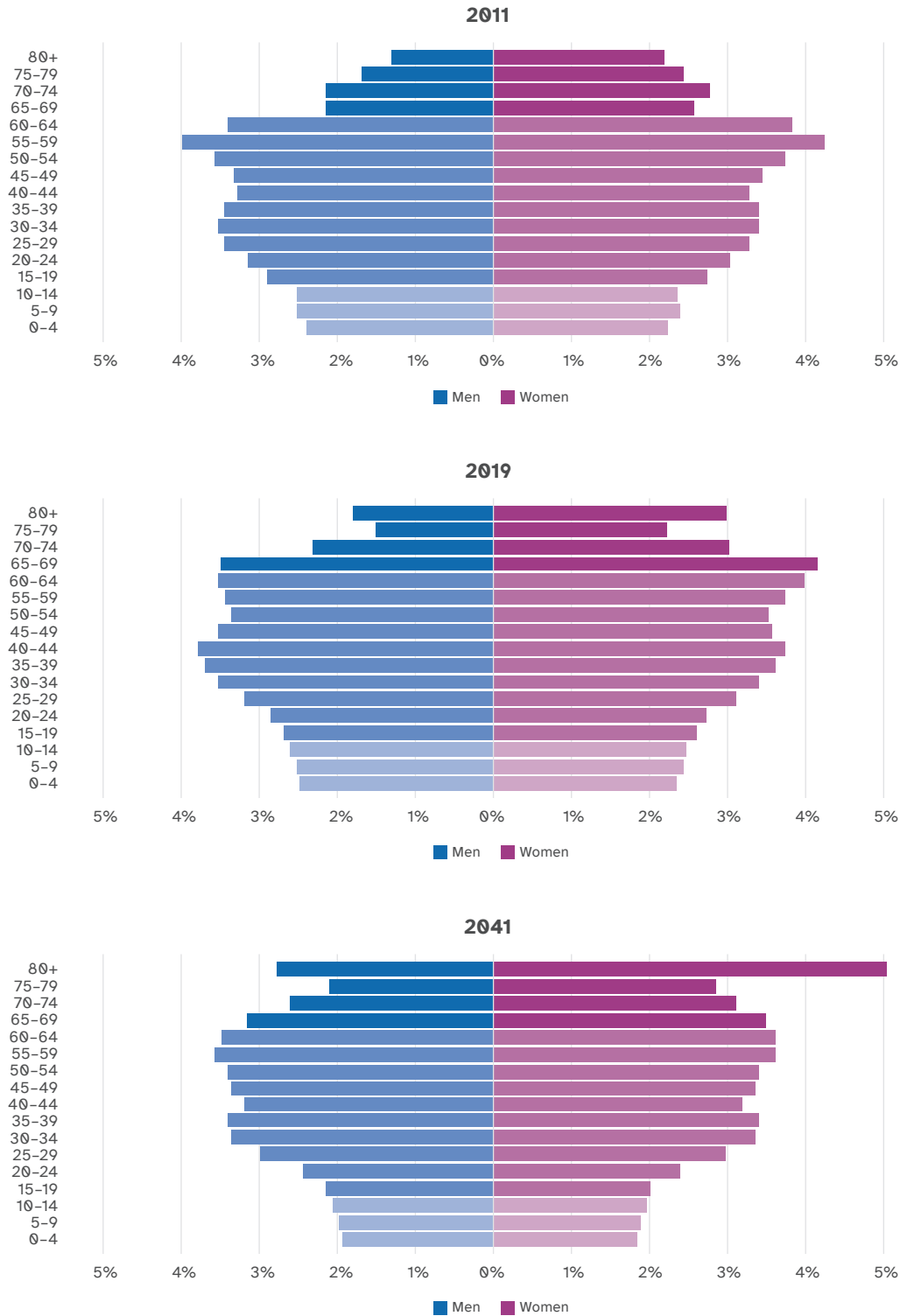
The combination of low fertility and the increasing life expectancy of the aged simultaneously put pressure on the decreasing contingent of the working-age population, which has to finance the economically inactive contingent of the population (unemployed dependent family members and pensioners) from their incomes. In addition, when it comes to the young population, the periods of economic dependence are gradually extending due to the time spent in education and, in countries with relatively high unemployment rates, such as Serbia, obtaining one's first job (job seeking). Based on the age pyramids presented above, demographic aging and future challenges are inevitable, as they are in many other countries.

The system of National Transfer Accounts (NTA) is consistent with the System of National Accounts (SNA) in showing how much income is generated by each population age group, how this income is redistributed, and how each age group uses available resources for consumption and savings.

In including the age component within the production, distribution, and redistribution of income, National Transfer Accounts (NTA) provide a useful analytical tool for measuring and analyzing the generational economy and mitigating the negative effects of population aging in the field of socio-economic policies, especially in the pension system and health and social protection programs.

Figure 1

Serbian population pyramids for 2011, 2019, and 2041



Background

The System of National Accounts (SNA) represents an effective analytical instrument for understanding quantitative relations between different economic subjects. SNA contains a set of accounts that together give an integral picture of a country's economy and its activities. Together, they provide a complete and consistent conceptual framework for measuring the economic activity of a nation. Sector accounts consist of a systematic description of the economic activities by institutional sector. In the context of Serbia's national accounts, a full sequence of non-financial sector accounts is produced at the level of the total economy, as well as for institutional sectors, including production accounts, generation of income accounts, and redistribution and use of income accounts. Institutional sectors represent a group of institutional units with similar characteristics and behaviors.

In the SNA five domestic institutional sectors are identified according to the European System of Accounts 2010 (ESA 2010):

- a) Non-financial corporations (S.11);
- b) Financial corporations (S.12);
- c) General government (S.13);
- d) Households (S.14);
- e) Non-profit institutions serving households (S.15).

These five sectors together make up the total domestic economy (S.1). Non-resident institutional units, involved in transactions with resident units, create the external sector, the rest of the world (S.2). All transactions between institutional sectors have been grouped into economically meaningful categories.

The goal of National Transfer Accounts (NTA) is to provide a systematic and comprehensive approach to measuring the economic flows from a generational perspective.¹ Many developing countries in the world are experiencing significant demographic changes that can have significant impacts on economic development. Periods of economic dependency are gradually extending because of the prolonged education of young people. Consequently, their entrance into the labour market and their exit from it is occurring later. In Serbia, the retirement age for men is 65 and for women 63, though it is expected to be 65 by the end of 2032.

The aim of the NTA project is to improve the understanding of the influence of age on the economy. Implementing the NTA approach at the national level implies recognition of how population growth and changing age structure can influence economic growth, public finances, and other related

¹ *National Transfer Accounts Manual: Measuring and Analysing the Generational Economy*, United Nations New York, 2013

aspects of the macro economy. The NTA system is consistent with the SNA in aiming to estimate how much people earn and consume at every age, how people who consume more than they produce support themselves (how this gap is filled), and to what degree this is done through private or public sources. NTA, hence, provide complementary information to National Accounts. NTA provide a methodology for assigning economic variables to population age groups and for measuring how economic resources are produced, consumed, and reallocated between different age groups in the population, i.e., how they are generally reallocated from the working age groups to children and older persons. In contrast to the SNA, the NTA system identifies three sectors of economy:

- a) the private sector (S.11 + S.12 + S.14 + S.15);
- b) the public sector (S.13); and
- c) the rest of the world (S.2).

NTA record transaction between individuals, rather than between institutional units, as transactions are recorded in SNA. This signifies that the individual is the fundamental analytic unit in NTA. In this system, all transactions are treated as flowing to (*INFLOWS*) and from individuals (*OUTFLOWS*) and are classified based on the age of those individuals.

In 2021, Serbian NTA were developed through the cooperation of the United Nations Population Fund (UNFPA) and the Statistical Office of the Republic of Serbia (SORS) for the first time. The NTA for Serbia were first estimated for the year 2018. This cooperation continued during 2022 and 2023, when the NTA accounts for the reference year 2019 were developed. This report summarizes the results for 2019 with an overview of the changes compared to 2018. For the calculations of the aggregated and *per capita* age profiles for the Serbian NTA, data from the Eurostat database on the population of the country by age on 1 January were used. For all economic variables, age profiles are constructed in *per capita* terms and then adjusted to the corresponding macro controls provided by National Accounts. with the final category of the age profiles comprised of all those aged 80+. For each item, the results are estimated on both *per capita* and aggregate bases for the total population. Main data sources for the estimation of components of the Serbian NTA include **National Accounts (SNA)**, **System of Health Accounts (SHA)**, **The European Union Statistics on Income and Living Conditions** and **Household Budget survey (EU-SILC and HBS)**, **Government Finance Statistics (GFS)**, **The European System of Integrated Social Protection Statistics (ESSPROS)**, **Eurostat database**, and various relevant administrative data. For the purposes of measuring and analysing the data, the NTA methodology described in the **European National Transfer Accounts (AGENTA manual)** was applied. Furthermore, the data sources recommended in this manual were drawn upon whenever feasible

The following steps were used in the calculations of the age profiles:

1. Calculation of the aggregate amounts for the total economy (macro controls). In some cases, NTA variables are the same as those in the SNA, while in other cases, they needed to be conceptually adjusted in order to be in line with NTA;
2. Estimation of *per capita* age profiles of the NTA component by age in single years using survey and/or administrative data;

3. Smoothing the age profiles using Friedman's Super Smoother as implemented in R. The age profiles were smoothed, due to the survey results containing noise. The same smoothing tool has been applied to all other age patterns in the Serbian NTA, except for education;
4. Multiplying *per capita* values by the population size of each age in order to obtain aggregate values by age, and adjusting the age profiles to match the value of a macro control derived from the SNA.

NTA accounts are divided into three sub accounts: the life cycle account, the transfer account, and the asset-based reallocation accounts. The aggregate values of the main NTA categories for 2018 and 2019 are summarized in Table 1. The age profiles presented are adjusted to these aggregate controls.

Table 1

Aggregate NTA controls, Serbia, 2018–2019 (million RSD)

	2018	2019
Life cycle deficit	999,814	948,141
Consumption	3,491,232	3,663,287
Public	839,044	901,124
Private	2,652,188	2,762,163
Less: labour income	2,491,418	2,715,146
Age reallocations		
Transfers	453,261	452,901
Public	46,201	49,196
Private	407,060	403,705
Asset-based reallocations	546,553	495,239
Public asset-based reallocations	-277,161	-318,453
Public asset income	-77,950	-73,732
Less: Public saving	199,211	244,722
Private asset-based reallocations	823,714	813,693
Private asset income	846,896	788,639
Less: Private saving	23,182	-25,054

1. The Life Cycle Account

the Life Cycle Deficit (LCD) is defined as a difference between consumption and labour income at each age. A positive value indicates that consumption falls short of labor income, giving rise to a LCD that must be financed through age reallocations. Conversely, a negative value indicates that labor income exceeds consumption, generating a lifecycle surplus (LCS) that can be transferred to other individuals or saved.

$$\text{LCD}(\alpha) = \text{C}(\alpha) - \text{YL}(\alpha)$$

1.1. Labour income

labour income consists of earnings of employees (including employers' social contributions) and returns on the labour of self-employed workers. SNA does not report the value of labour of self-employed and unpaid family workers, so it is estimated from the mixed income. Mixed income in SNA does not distinguish the return on capital from the return on labour.

For the purposes of this report, a simple approach recommended by the NTA methodology has been applied, whereby 2/3 of gross mixed income is allocated to the labour income and 1/3 of gross mixed income is allocated to capital income.

The major difference between SNA and NTA in regard to labour income and consumption is the treatment of taxes less subsidies on products and production. Total taxes less subsidies are divided into three parts: taxes less subsidies on labour income, on capital income, and on consumption. The rule is that the burden falls on one of these groups depending on the exact type of the tax. Taxes on products are assumed to be paid by consumers and are in total allocated to consumption. In this system, labour income is measured before assessment of taxes less subsidies. Therefore, for the this analysis, it was necessary that this income be adjusted upwards by adding taxes less subsidies, which means that this income is defined as pre-tax, that is, prior to the payment of any taxes associated with this income (such as payroll taxes). No detailed information was available to enable the allocation of taxes less subsidies between labour and capital. In the case of Serbia, the recommendation from the NTA manual to split them between labour and capital in proportion to share of labour and capital income has been followed. The accounting of compensation of employees and self-employment labour income was done separately based on their shares in the following way:

Earnings of employees = Compensation of employees (SNA) + labour share of other taxes less subsidies on production allocated to Compensation of employees + Employers' social contribution

Self-employment labour income = 2/3 of gross mixed income (SNA) + labour share of other taxes less subsidies allocated to the self-employment labour income

In order to obtain the NTA macro control for compensation of employees, the value from the SNA was adjusted to include taxes less subsidies on other production allocated to labour, while the macro control for self-employment income was calculated as two-thirds of SNA gross mixed income, also adjusted for the taxes less subsidies on production.

The age profiles were calculated separately for wages and salaries, employer’s social contributions and self-employed income. Age profiles for all labour income components were estimated using the EU-SILC survey data, where each of these components was reported at the individual level. In order to allocate labor income by age, EU -SILC survey data were used as suggested in the AGENTA Manual. The age profiles were calculated separately for wages and salaries, employer’s social contributions and self-employment income. These categories are reported in EU-SILC separately for each individual older than 16 years. By law, it is not possible for individuals younger than 15 years to work (only individuals aged 15+ can officially enter the labour market and generate labour income), so the age profiles for age groups younger than 15 were set to zero.

In the Serbian NTA, labour income for 2019 amounted to **2,715.1 billion RSD**. The age profile of the Serbian *per capita* labour income in 2019 is presented in Figure 2.

Figure 2

Age profile of *per capita* labour income components, Serbia, 2019

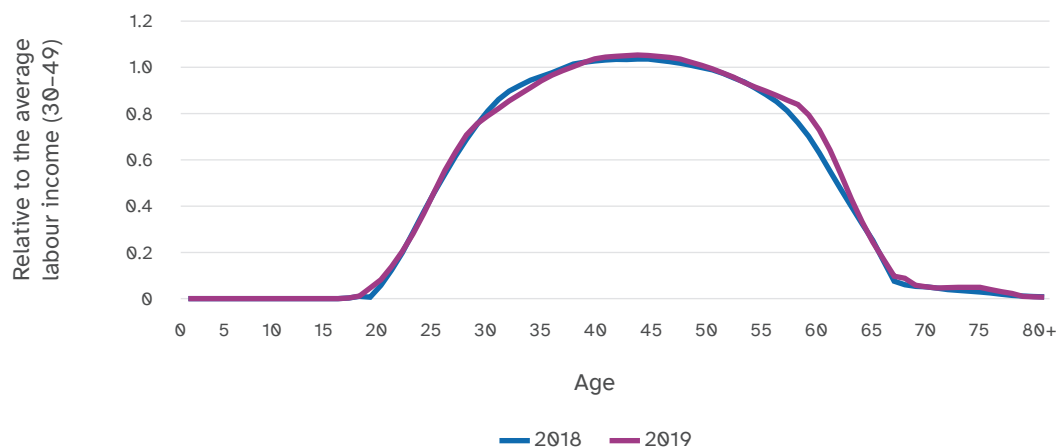


The data show that the earnings of employees represent the largest part of total labour income in Serbia, while the labour income of the self-employed is much smaller. *Per capita* income begins to increase after the age of 16 and keeps on increasing until, as expected, it peaks around the mid-40s, afterwards declining. Labour earnings are consistently higher than self-employment labour income for all ages, with the exception of after the age of 65, where labour income is mainly composed of the income of the self-employed because 65 is the retirement age in Serbia. In order to enable comparison over time and across countries, the age profiles have to be measured in comparable units by normalizing the age profiles. Here, the standard method for normalizing the

age profiles in the NTA was applied, whereby *per capita* values are divided by the simple average of *per capita* labour income of the 30–49 years old age group. Figure 3 presents labour income *per capita* according to age profile relative to the average labour income for 2018 and 2019. In 2019 the labour income curve shifted slightly to the right between the ages of 56 and 63. This could be potentially explained by the increase in the legal pensionable age for women.

Figure 3

Labour income Serbia, 2018–2019



1.2. Consumption

In the NTA system, total NTA consumption is divided into public and private consumption.

Public consumption equals the SNA final consumption expenditures for the general government sector.

Private consumption is equal to the final consumption expenditures for the household and NPISHs (non-profit institutions serving households) less taxes less subsidies on products. As mentioned before, taxes on products are assumed to be paid by consumers and are entirely allocated to consumption. Therefore, consumption from the SNA needs to be adjusted downwards and taxes less subsidies on products are excluded. Both public and private consumption are analyzed separately by purpose (function) and are divided into education, health and consumption other than education and health.

1.2.1. Public consumption

Public consumption is the value of goods and services received by individuals from the public sector. Public consumption is distinguished between individual public consumption, when the beneficiaries of a specific program in fields like health and education are known, and collective, when the beneficiary is the population in general.

The age profiles for **public education consumption** were calculated according to the following steps:

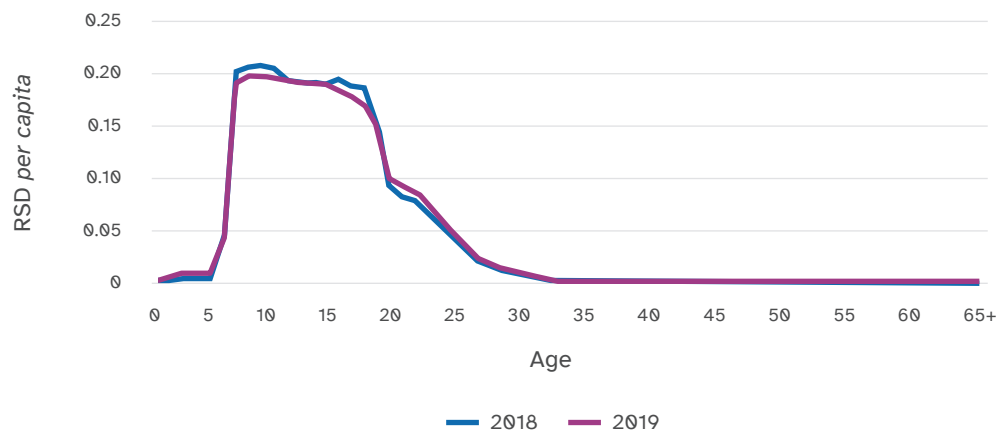
- > **First, unit costs for each level of education were calculated by dividing level-specific public expenditures on education by number of students enrolled in public institutions at each level of education, with the assumption that the unit cost of public education is equal for all students enrolled in a specific level regardless of age;**
- > **Second, the enrollment rate for each age and by level was calculated as the number of students enrolled in each level divided by the population of each age;**
- > **Third, total consumption by age group was calculated by multiplying the unit cost with the enrolment rate and summing the results across the level of education;**
- > **Finally, dividing age-specific education consumption by population size at each age, the *per capita* public education consumption was obtained.**

For the age groups 50–54, 55–59, 60–64, and 65+, the educational level specific data on the number of enrolled students were only available for 5-years age groups, whereby uniform distribution to 1-year age groups is assumed. Age profiles for public consumption on education were estimated using data from **General finance statistics (GFS)**, **Education statistics**, and the **Eurostat database** (data on number of enrolled students by age and ISCED educational levels), as well as data on the **share of total public education expenditures from the United Nations Educational, Scientific, and Cultural Organization (UNESCO) database**. The age profiles for public education consumption were not smoothed due to such data being population data and due to very significant age fluctuations associated with particular grades. In Serbia, as in all surveyed countries, per-capita education consumption is low in the kindergarten years, after which it starts to increase rapidly and stays high during primary school due to mandatory enrollment.

Figure 4 shows *per capita* age profile for **public education** consumption in Serbia for 2018 and 2019. The age profiles appears very stable between two years. The legal obligation for pre-primary education in Serbia is age 6 for children and for primary education 7–15, which is reflected in the sharp increase of public expenditures on education from age 6 for both 2018 and 2019. Public education consumption is largely focused on the primary and secondary levels; after the age of 18 years, expenditures fall quickly to a low level. Following the standard completion of secondary education, enrollment rates start to fall, which results in lower *per capita* consumption. After the age of 30, public education consumption is almost negligible.

Figure 4

Public Consumption, Education, Serbia, 2018–2019



It can be seen that spending on pre-primary education level in Serbia is in general very low. This can be explained in part by many kindergartens not having the status of an educational institution but rather functioning as childcare institutions. Hence, these expenditures are included in social protection, not in education expenditures. More precisely, out of a total of 2024 educational institutions, only 27 are pre-primary educational institutions. In 2019 a significant decrease of employees in the sector of social protection was detected due to a large number of employed persons from the social protection sector flowing to education. The reason for this was that numerous kindergartens changed their status from institutions for social protection to educational institutions. This shift was also reflected in the higher public spending on pre-primary education documented in 2019 compared to 2018. This trend has continued in the following years as well.

Another explaining factor here is that the enrollment rate for pre-primary institutions is very low. Here, bearing in mind that there is a severely limited and insufficient number of pre-primary institutions, it is a common situation in Serbia that all capacities are full and there is no free space for additional children. Relatedly, grandparents are commonly called on to take care of their grandchildren while parents are at work. Worth noting in this context is that the data for 2019 show a slight increase in the enrollment rate compared to 2018.

Age profiles for **public health consumption** were calculated by summing the age profiles of basic health care categories from System of Health Accounts (SHA) obtained from the Institute of Public Health of Serbia. The main data sources used for the estimation of age profiles for the health care categories presented just below were administrative data from the **Institute of Public Health of Serbia and the Republic Fund of Health Insurance**.

HC.1 Curative care: data from SHA were used to split curative care between inpatient and outpatient users. For the inpatient users, number of health care users by age was obtained from the Institute for Public Health, while for the outpatient services, profiles were calculated using estimated weights (Figure 5).

HC.2 Rehabilitation: the number of users of rehabilitative care by age were obtained from the Institute of Public Health of Serbia. Due to a lack of data availability, only data for hospital-treated patients were used for calculations (Figure 6).

Figure 5

Curative care, Serbia, 2019

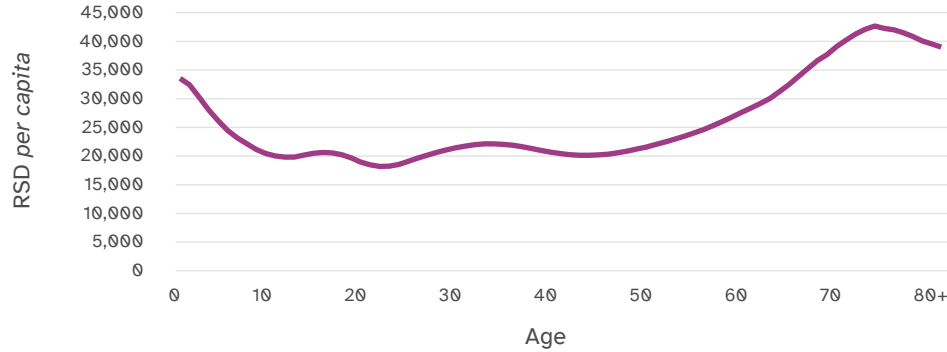
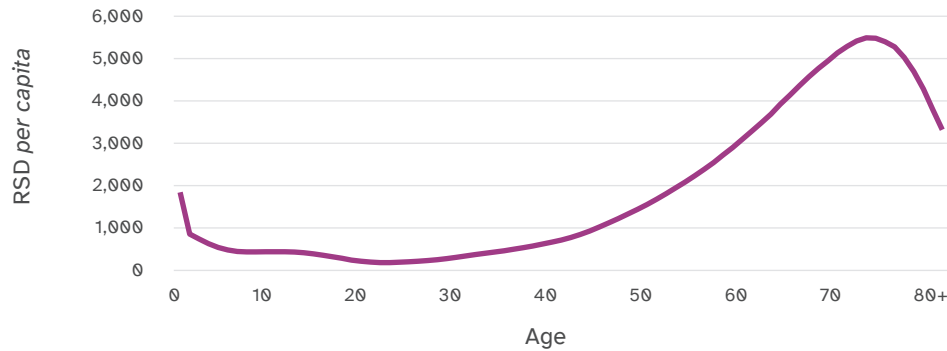


Figure 6

Rehabilitation, Serbia, 2019



HC.3 Long-term care: data on the number of long term care users by age were obtained from the Institute of Public Health of Serbia. As in the case in the category of rehabilitation, only data for hospital-treated patients were obtained (Figure 7).

HC.4 Ancillary services: the number of total users of health care services obtained from the Serbian Republic Fund of Health Insurance was used, with an assumption that all health care users use ancillary services (Figure 8).

HC.5 Medical goods: the number of prescriptions by age was used, separated according to pharmaceuticals and therapeutic appliances, obtained from the Serbian Republic Fund of Health Insurance (Figure 9 and Figure 10).

HC.6 and HC.7 Preventive care and rehabilitation were allocated on a *per capita* basis to all individuals equally. Services such as disease prevention, occupational health care, family planning, and collective public health expenditures are not targeted to any specific group and hence were allocated in equal shares to the consumption of individuals.

Figure 7

Long-term care, Serbia, 2019

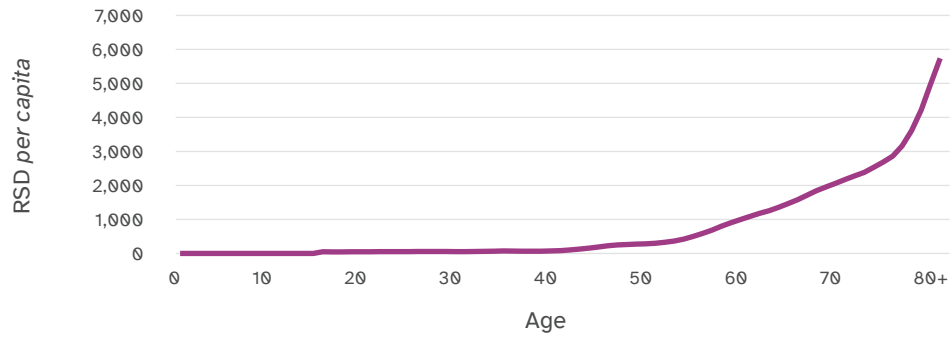


Figure 8

Ancillary services, Serbia, 2019

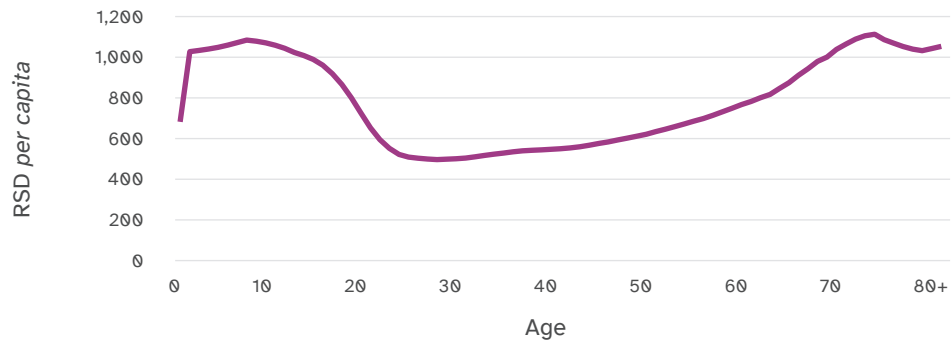


Figure 9

Pharmaceuticals and other non-durable goods, Serbia, 2019

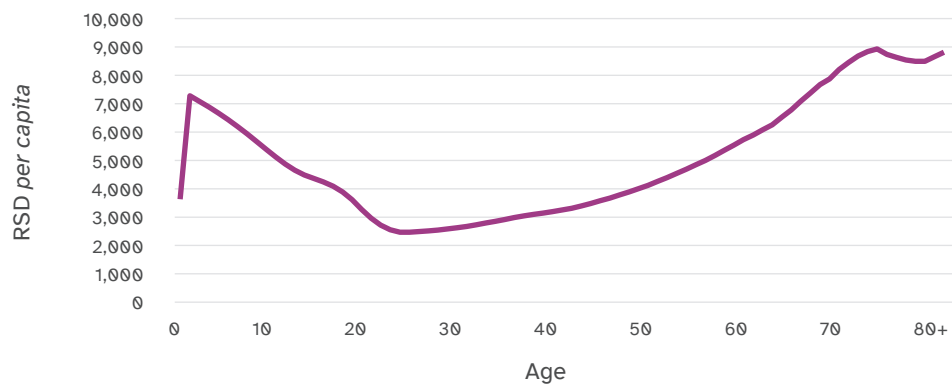


Figure 10

Therapeutic appliances, 2019

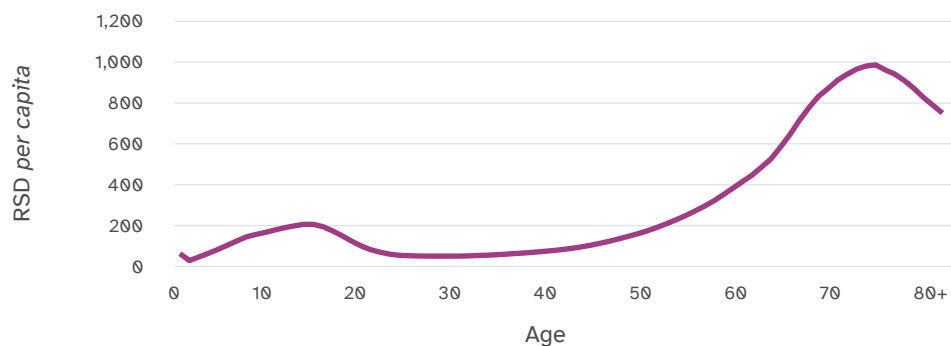
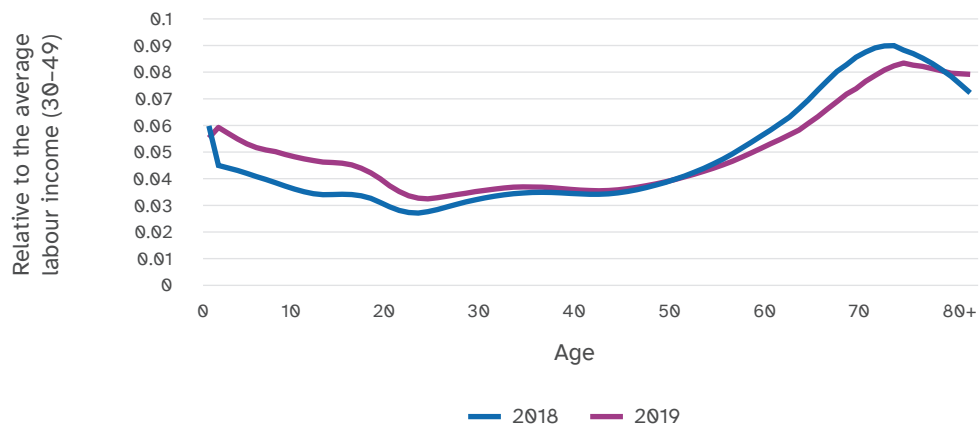


Figure 11

Total *per capita* public health consumption, Serbia, 2018–2019

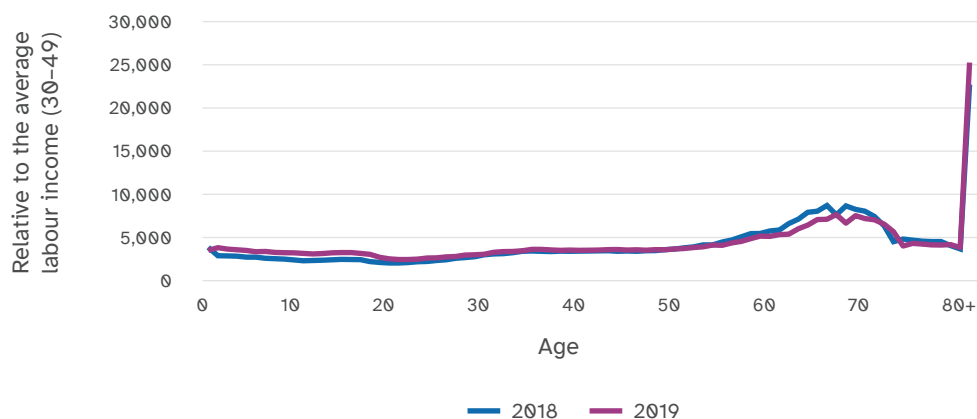
Public consumption of health services in Serbia amounted to **266.9 billion RSD** in 2019 and accounted for **29.6% of total public consumption**. Compared to 2018, the results for 2019 show noticeable changes in the share of several of the largest health categories in total health expenditure:

- > hospital services **46.1 %** (2018) → **29.5%** (2019);
- > outpatient services **14.5%** (2018) → **38.7%** (2019);
- > medical goods such as therapeutic appliances, pharmaceuticals, and other non-durable goods **14.6%** (2018) → **14%** (2019).

The aggregate age profiles for **public health consumption** appear very stable between two years (Figure 12). At the youngest age (the first year of life), total public *per capita* health expenditures (Figure 11) were higher than in the following age groups. This is in line with the results for other countries, because children in their first year are provided with an intensive program of fundamental medical services like vaccinations, frequent examinations, etc. The data show that during childhood expenditures remain pronounced, but by the end of childhood these expenditures decrease. They start to rise again in the 30's and 40's mainly because of treatments related to motherhood. From the age of 45, expenditure starts to grow intensively and continues into the 70's. After the age of 70, public health consumption expenditures for almost all health categories begin to fall. For the age zero, unsmoothed values in the series were used, since NTA admit higher public consumption at this post-birth age, and also due to monthly checkups being mandatory until the age of one.

Figure 12

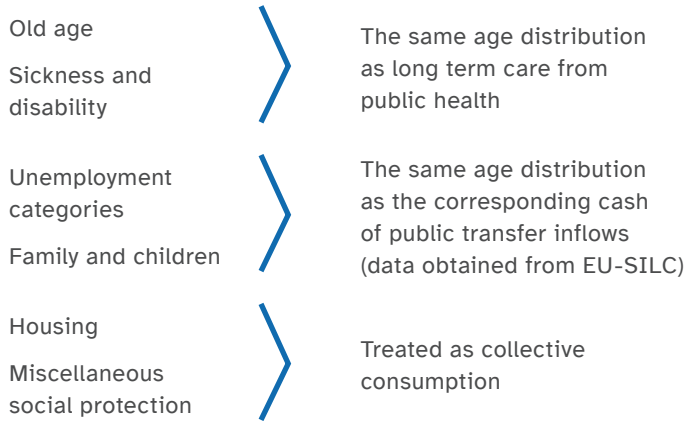
Total aggregate public health consumption, Serbia, 2018–2019



Public consumption other than education and health is composed of two categories:

1. *Individual consumption* that can be allocated to the particular beneficiaries of public programs; and
2. *Collective consumption*, not linked to any specific group which is shared equally among all individuals regardless of their age (such as expenditures on public administration, street lighting, transport, defense, justice, etc.).

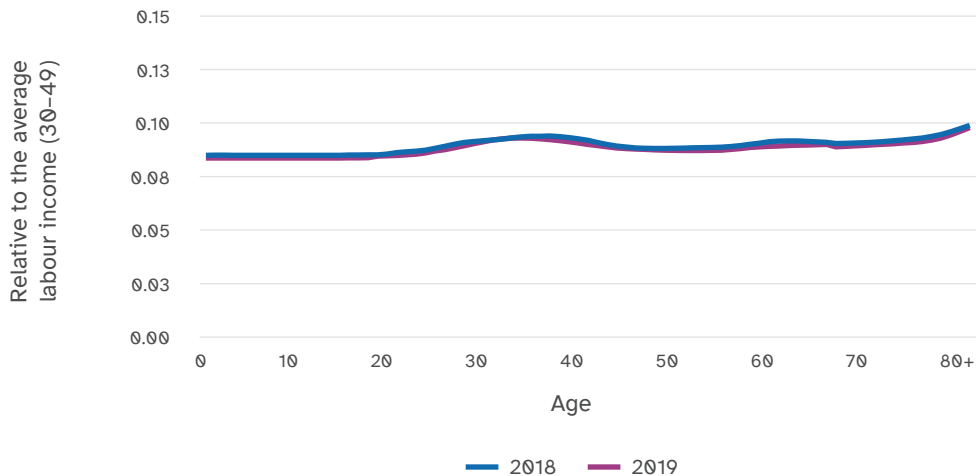
Public individual consumption is the category that can be allocated by age. Although categories other than education and health have a much smaller share in the total public consumption and therefore could be combined into one variable according to the UN methodology, in the case of Serbia for the purposes of this report, it was decided that this variable be treated in more detail, in the manner proposed in the AGENTA Manual, the logic of which is displayed just below. Collective public consumption expenditures are not targeted to any specific group and hence are allocated equally to all members of the population.



The *per capita* age profiles of public consumption other than education and health in Serbia for 2018 and 2019 (Figure 13) are quite stable through different ages. Because the greatest part of other public consumption consists of uniformly distributed collective consumption, the shape of the age profiles does not change significantly over time. It is higher between the ages 30 and 40, assumedly because of the category family and children, and at the oldest age, where it is inherently driven by the demands of old age, sickness, and disability (these two categories consists mainly of in-kind benefits received by the respective beneficiaries).

Figure 13

Public consumption other than education and health, Serbia, 2018–2019



1.2.2. Private consumption

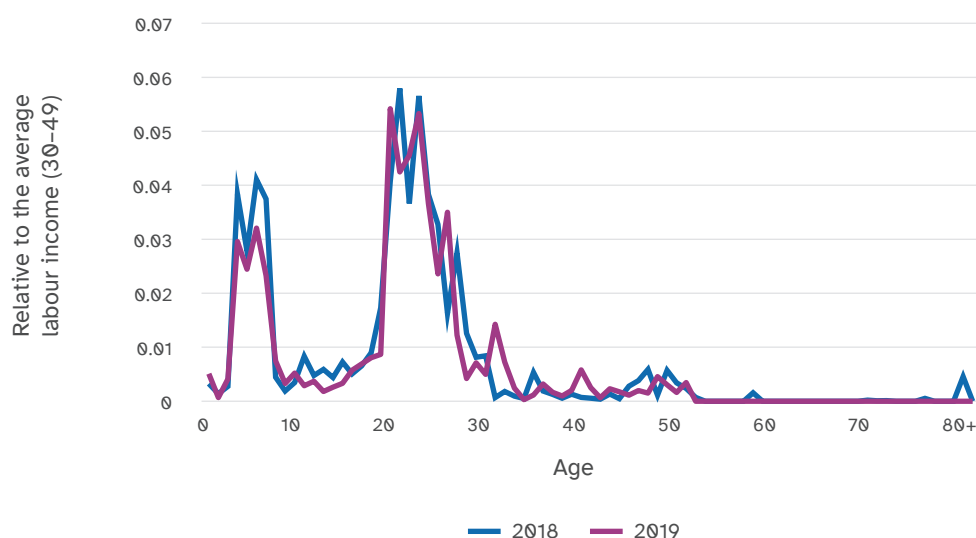
Private consumption age profiles were estimated using data from the Household Budget Survey. Data on private consumption expenditures are collected at the household level using allocation rules for allocation of consumption among household members. The standard NTA project methodology was followed in assigning household expenditures in Serbia to individuals using a regression model. With a total amount of **2,762 billion RSD**, the private consumption represented **75.4%** of the total consumption in the NTA in 2019.

Private education consumption expenditures were allocated among the household members by combining data on level-specific expenditures with the information on the level of education in which an individual is enrolled. The level-specific private consumption of the household was divided by the number of pupils enrolled in this educational level within the household. Expenditures not differentiated by the level of education were equally distributed among all household members enrolled in any level of education.

Figure 14 shows the age profile of private education consumption for 2018 and 2019. It can be observed that the pattern of *per capita* education consumption remained essentially unchanged. The data for both years indicate that private expenditures on pre-primary education are high. As mentioned in the context of public education, there is a very small number of public pre-primary institutions in Serbia, with many working at full capacity with no free space for additional children. In the private sector, however, there are a number of private kindergartens that receive payments from households for child day care. The legal obligation for pre-primary education for children in Serbia is age 6, and for primary education 7–15. Consequently, in these age groups, public consumption is dominant while private consumption is low. The data indicate that *per capita* private education consumption reaches its maximum for persons in their early 20's, which is explained by the large private expenditures for university tuition. The data processed for the calculations of private education consumption were not smoothed.

Figure 14

Private consumption, Education, Serbia, 2018–2019



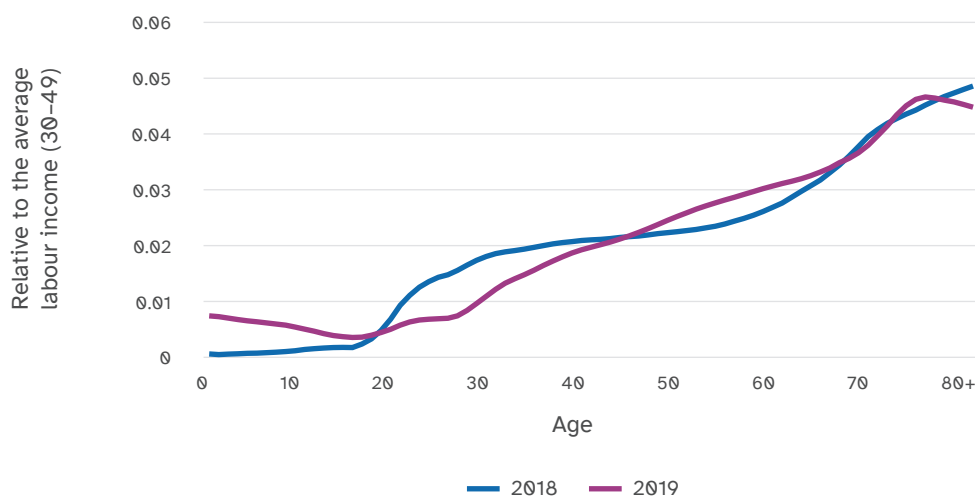
Private health consumption expenditures (Figure 15) were allocated at the household level to individuals based on an equivalence scale estimated with a regression function by regressing health expenditures of a household according to the number of household members of a specific age group as explained in the *AGENTA Manual*.

In this context, it is interesting that private health expenditures for newborns were not found to display the distinct peak observed in the results for public health. This likely indicates that the public sector in Serbia covers nearly entirely the health expenditures for newborns and that additional private expenditures are therefore not needed.

The data indicate that private health expenditures remain at a low level throughout childhood before increasing sharply in the late 20s and thereafter increasing gradually with age. Having in mind that estimates were made based on a sample survey, private health expenditure could be unevenly distributed and thus lead to an unstable pattern.

Figure 15

Private consumption, Health, Serbia, 2018–2019



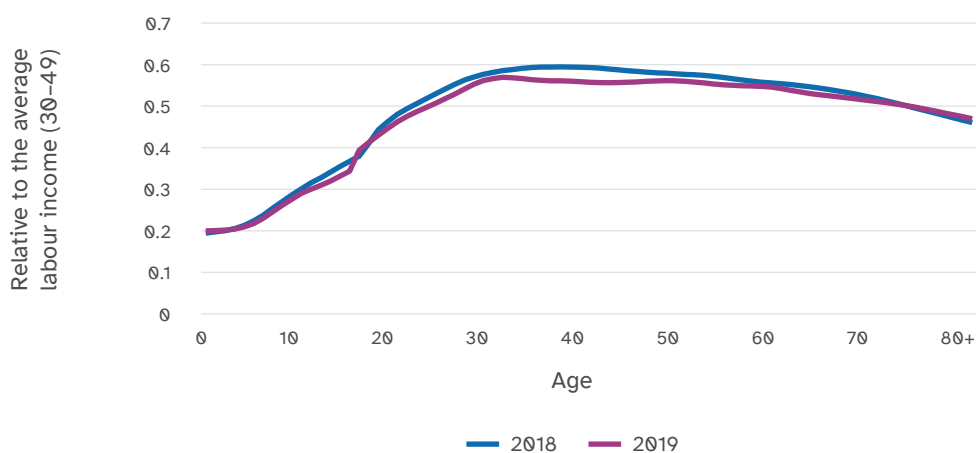
Private consumption other than education and health was allocated using the ad-hoc allocation rule, based on an equivalence scale. Private consumption other than education and health is divided into two subcategories:

1. *Housing consumption* (owner-occupied housing), where data from the EU-SILC were used for the compilation of age profiles. Here, household imputed rent is the factor applied, which represents the rental value of owner-occupied housing for the household;
2. *Other consumption* (excluding education, health, and housing), where an ad hoc equivalence scale was used to allocate other consumption expenditures of a household to its members.

The allocation method assigned weights to household members based on age as follows: 0.4 for children below the age of 4; linearly increasing from 0.4 to 1.0 from age 4 to 20; and 1 for ages 20 and older. The equivalence scale gives lower weight to children than to adults. The allocation rule assumes that people aged 20 or older have the same consumption share that is represented with weight of 1.0. Age profiles of **private consumption other than education and health** for 2018 and 2019 are presented in Figure 16. The shape of the *per capita* age profile of private other consumption is driven primarily by the ad hoc equivalence scale used to distribute other consumption expenditures by household according to its members aged 20. *Per capita* age profiles of **other private consumption** were found to grow rapidly until approximately age 30, from which point they remain almost constant during middle age before decreasing slightly beginning at around age 70.

Figure 16

Private consumption other than education and health, Serbia, 2018–2019



In examining the detailed categories of **public consumption expenditure** (Figure 17), it is apparent that public spending is the main source of financing for education and health consumption.

More precisely, in 2019 **17.7% of public compensation was accounted for by education expenditure, 29.6% by health expenditure, and 52.7% by expenditure for other public goods.** On the other hand, education and health account for only **5.4% of private consumption** with the remaining **94.6% accounted for by other consumption.** The data indicate that in Serbia the government plays an important role in the consumption of education and health. The aggregate consumption results show that private education consumption, as well as public education consumption, are concentrated among younger people in Serbia. In contrast, private health consumption and public health consumption are concentrated among the older population.

Figure 17

Public consumption and components, Serbia, 2019

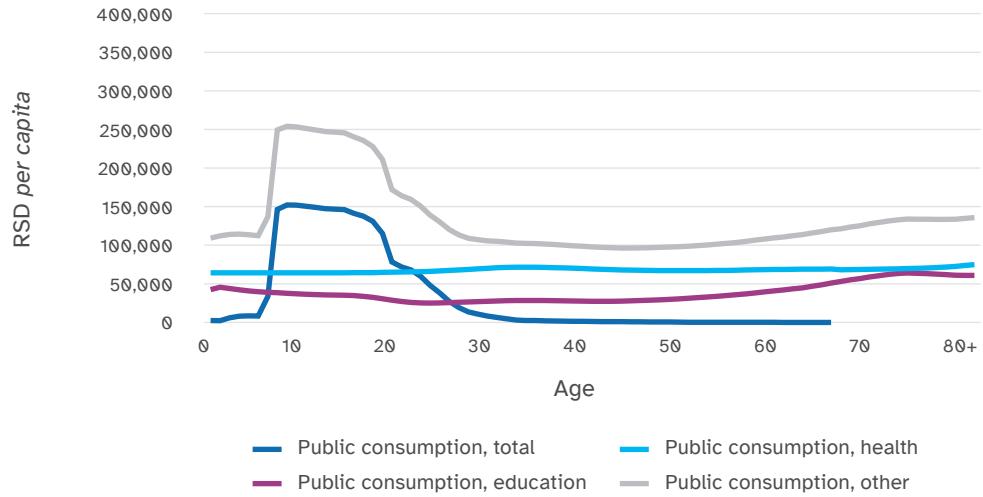
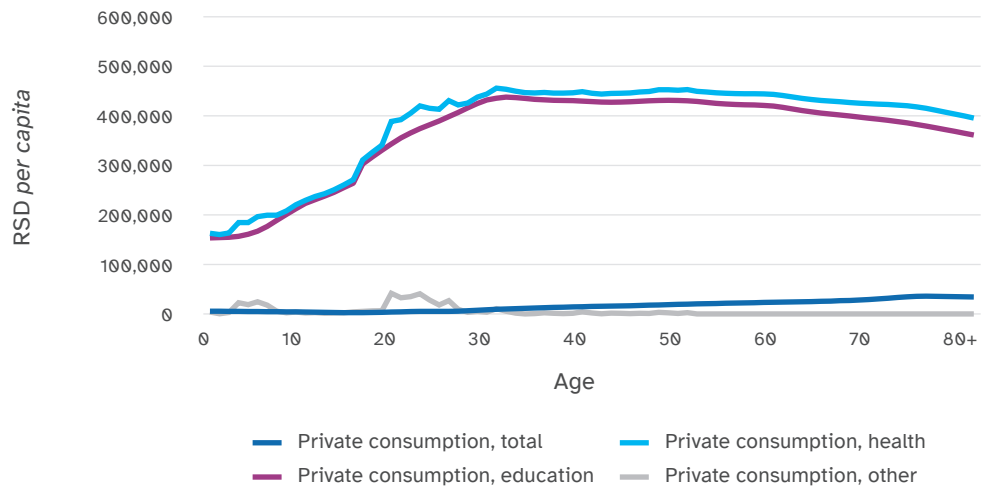


Figure 18

Private consumption and components, Serbia, 2019



It can be observed that the share of the main categories within the **total private consumption** remained almost unchanged in 2019 compared to 2018 (Figure 19). Figure 20 shows the corresponding results for **public consumption expenditure** and their components.

Figure 19

Private consumption and components

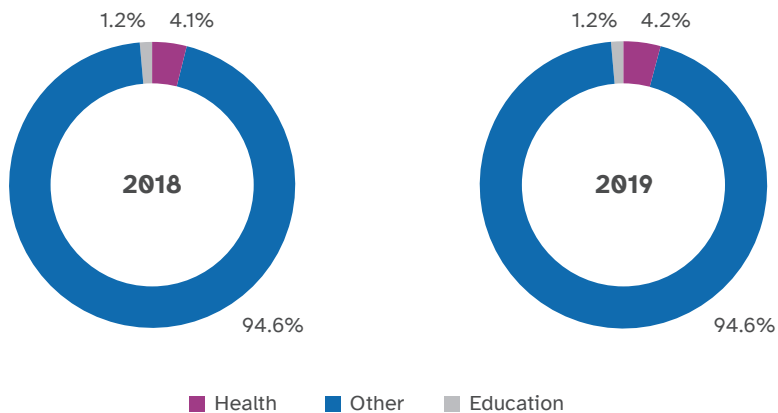
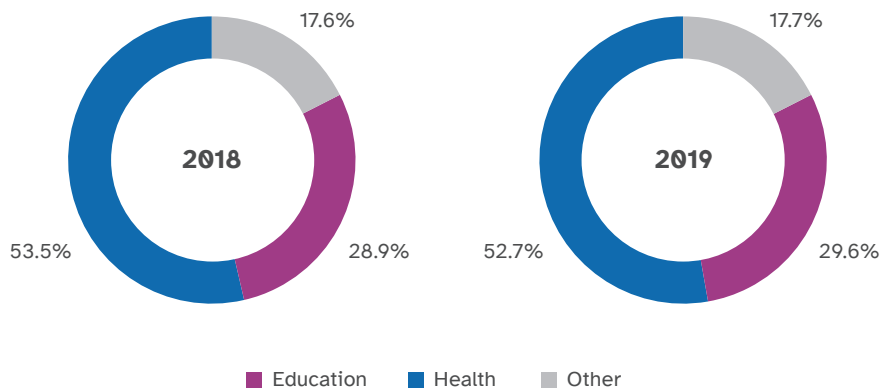


Figure 20

Public consumption and components



1.3. Life-cycle deficit

The **life cycle deficit** shows the difference between the consumption and labour income at each age. This concept was introduced by the NTA project, and serves as the **balancing item** of the economic lifecycle account. It represents the value of consumption that is not financed by labour income, but through other resources including asset-based reallocations, (e.g., dissaving and capita income), and transfers (e.g., public pensions and transactions among families and friends). LCD is typically **positive at the beginning and the end** of the lifecycle (childhood and old age) and **negative in the middle** (working life), implying that younger people consume more while earning negligible amounts of labour income. A similar situation is typically found among older people who have significant levels of consumption while earning only small amounts of labour income. In contrast, the population of prime working age earn more in labour income than they consume.

Figures 21 and 22 show that, as expected, the deficit is positive for young and older persons. At younger and older ages people are typically less productive and consume more than they produce, resulting in **life cycle deficits**. Working-age individuals typically display the opposite pattern: they generate **life cycle surpluses** through their more productive work while consuming less. A positive value of LCD as a balancing item indicates that consumption falls short of labor income, giving rise to a LCD that must be financed through **age reallocations**. Conversely, a negative value indicates that labor income exceeds consumption, generating a **life cycle surplus** (LCS) that can be transferred to other individuals or saved. Such surpluses are typically used, either directly or indirectly (by having other institutions as intermediaries) to finance the consumption deficits of people of other ages. Persons may also use savings they accumulated earlier in life to fund their own consumption at older ages, whereas younger persons may take loans that will be repaid later in their life.

The **life cycle deficit** for Serbia (Figure 21) starts positive and increases up until about age 17. It reaches an initial peak at the age of 17 before it starts dropping (as labour income begins to rise). The LCD bottoms out between 35 and 50 years of age, after which it begins to increase (as labour income begins to fall). Figure 21 indicates that in 2019 consumption by those aged under 26 tends to be greater than labour income and the LCD is positive. A similar situation is found above the age of 59. The data show that between the ages of 26 and 59 years, labour income tends to be greater than consumption and the LCD is negative (there is a life cycle surplus).

Figure 22 presents the **Life cycle deficit** relative to the average labour income for the years 2018 and 2019. The length and shape of the LCD is similar for these two years. It shows that there is a surplus in the LCD of 34 years in 2019, compared to a surplus of 31 years in 2018. This indicates that individuals were able to finance their consumption for a longer period in 2019. In older ages, the period of dependency was shown to begin at the age 58 in 2018, while in 2019 people were shown to become dependent on others at the age of 60.

This finding was expected, as the legal retirement age for women was increased in 2019 compared to 2018. This age is planned to rise gradually until 2032, when the legal retirement age for women is envisioned to be 65. For men, the retirement age in Serbia has been set at 65 since 2014.

Figure 21

Life cycle deficit, Serbia, 2019

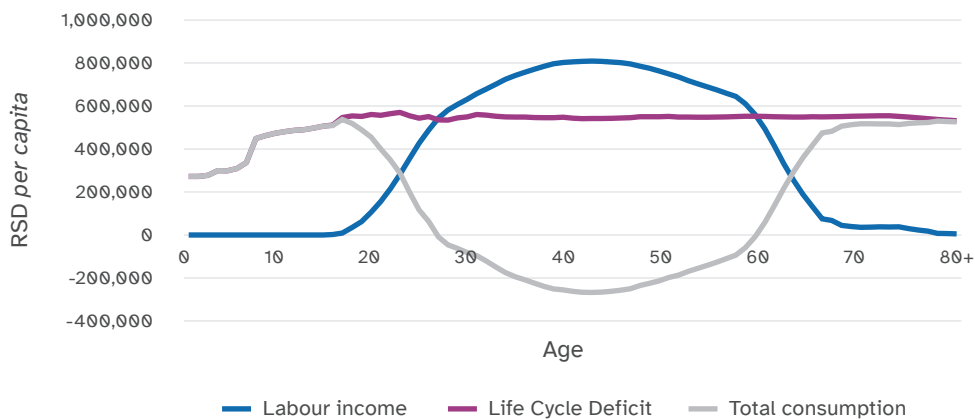


Figure 22

Life cycle deficit, Serbia, 2018-2019

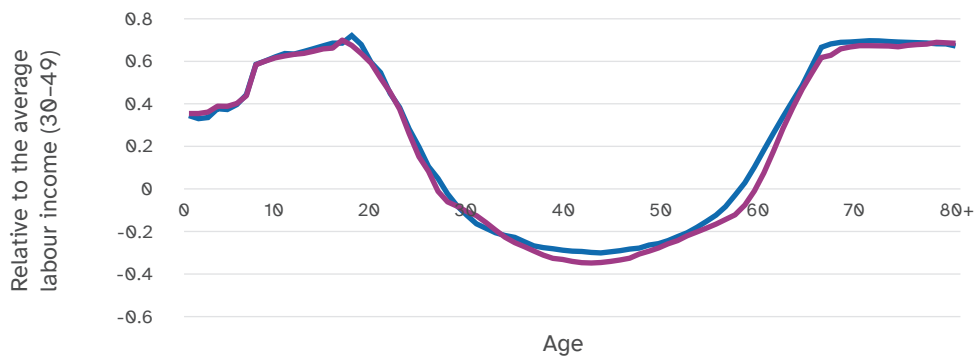


Table 2 presents in broad age groups the aggregate values for consumption and income components. The total LCD for Serbia, as an aggregate over all age groups, amounted to **948.1 billion RSD in 2019**.

Table 2

Aggregate consumption, labor income, and life cycle deficit by age group, Serbia, 2019, current prices (millions RSD)

NTA Component	Total	Age group				
		0-19	20-29	30-49	50-64	65+
LCD	948,141	571,623	89,208	-428,635	-4,027	719,972
CONSUMPTION	3,663,287	586,462	442,405	1,056,872	802,069	775,479
Public	901,124	264,622	103,365	191,706	156,501	184,931
Education	159,376	127,655	28,164	3,387	168	3
Health	266,855	50,161	21,007	54,443	56,972	84,273
Other	474,893	86,806	54,195	133,876	99,361	100,655
Private	2,762,163	321,840	339,039	865,166	645,568	590,549
Education	32,410	11,996	15,795	4,375	245	0
Health	117,047	5,496	4,744	28,370	33,327	45,110
Other	2,612,705	304,347	318,501	832,421	611,997	545,439
Total	3,663,287	586,462	442,405	1,056,872	802,069	775,479
Education	191,786	139,651	43,958	7,762	412	3
Health	383,902	55,657	25,750	82,813	90,299	129,382
Other	3,087,598	391,153	372,696	966,297	711,358	646,095
LABOUR INCOME	2,715,146	14,839	353,196	1,485,507	806,096	55,508
Earnings	2,278,562	11,520	312,378	1,280,307	651,686	22,671
Self-employed	436,585	3,319	40,819	205,200	154,410	32,837

The life cycle deficit is financed by **public and private transfers** and **public and private asset-based reallocations**. When LCD is positive, the difference has to be covered through age reallocation inflows. This can be in the form of public transfers (receiving unemployment benefits from the public sector, for example), private transfers (e.g., children receiving transfers from their parents), asset income, and savings.

2. Public reallocations by age

Public reallocations have two mechanisms of inter-age reallocation:

1. Public transfers;
2. Public asset-based reallocation.

2.1. Public transfers

Public transfers are transfers between the public and the private sector, or transfers between the public sector and the rest of the world. Total net public transfers in a given economy, at the aggregate level, are the difference between those received (inflows) and paid (outflows) by individuals to and from the government, respectively.

Public transfer inflows for 2019 in Serbia amounted to **1,795 billion RSD** and comprised both in-kind and in-cash transfers received by individuals. In-kind public transfers **inflows** are equal to the total public consumption adjusted to exclude taxes minus subsidies. Therefore, these transfers are equivalent to the already presented category of public consumption. In-cash public transfer **inflows** (monetary transfers received from government) consist of social benefits, other than in-kind social transfers, and other current transfers received by the private sector (pensions, unemployment benefits, child allowances, and miscellaneous current transfers from the general government in the form of assistance and grants, except those recorded as investment grant). For the purposes of this report, the aggregate values of public transfer inflows in cash were estimated according to their purpose using data from **The European System of Integrated Social Protection Statistics** (ESSPROS), adjusted proportionally to be in line with data from the National Accounts (NA).

Public transfer outflows consist of taxes, social contributions and other revenues paid by the private sector to the government (e.g., non-life insurance claims that insurance enterprises are obliged to pay and miscellaneous current transfers), where aggregate values are taken from NA. These are transfers that typically flow from working age adults, who pay taxes, to those in the age groups in which beneficiaries are concentrated, often children and older persons, in funding the life-cycle deficit. **Total taxes** are differentiated by the activity that is being taxed into: taxes on asset income (taxes on income, profits, and capital gains); taxes on payroll and the workforce (labour income); and taxes on goods and services (consumption), using the data on the structure of taxes by economic function.

Net public transfers = Public transfer inflows - Public transfer outflows

As mentioned, in-kind public transfers inflows are equal to the total public consumption. Accordingly, **in-kind public transfer** inflows follow the same age profile as public consumption. Age profiles for **in-cash public transfers** were estimated using data from the EU-SILC survey, in which public cash transfers were reported by individuals as their income, using the same variables and methods as described in the AGENTA manual. Both in-cash and in-kind transfers were grouped into the categories of education, health, and pension payments. In the case of education, no macro control for education was reported in ESSPROSS, which means that the age profile for education in this context is identical to the age profile for public education consumption expenditure, presented in the first part of this report.

Figure 23 shows that the in-kind public transfers in Serbia are highly positive for young and old individuals, with pensions dominating the picture, signifying that a large amount of public transfer inflows goes toward the provision of basic education and public pensions. Pensions (together with survivor’s and disability benefits) represent the greatest segment of public transfer inflows in Serbia with an aggregate value of **670.8 billion RSD and accounting for 37.4% of total public transfer inflows**. The pension system is organized on a pay-as-you-go basis under a defined benefit scheme, which is mandatory for all employees and the self-employed.

Figure 24 shows the public transfer inflows for old age pensions related to the average labour income for 2018 and 2019. As seen in the age profile of labour income in Figure 3, in 2019 people were shown on average to work for a longer period of life and therefore retire later. Results for 2019 show a slight decrease in the share of **pension inflows** in the **total public transfer inflows**, from **38.2% to 37.4%**. Namely, in 2019, the standard indexing of the pension age was temporarily abolished, while in Serbia the government has a discretionary right to determine whether and how many pension increases there shall be. Starting in 2020, a new pension indexing formula has been implemented.

Figure 23

Total public transfer inflows by purpose, Serbia, 2019

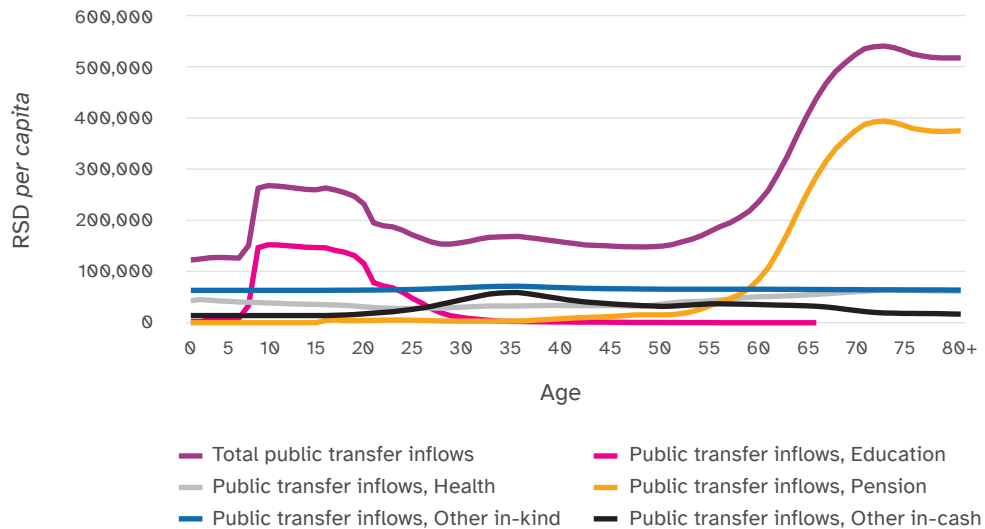
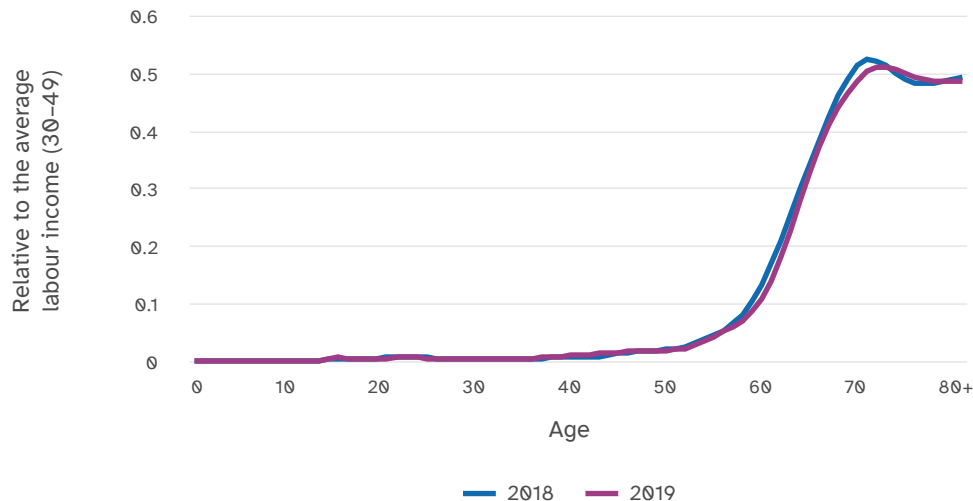


Figure 24

Public transfer inflows, pensions, Serbia, 2018–2019



In 2019, education and health accounted for **8.9% and 16.3% of total public transfer inflows**, respectively. While **education** inflows appear concentrated at younger ages and almost disappear at about the age 30, inflows for **health** show increasing *per capita* values with age. Figure 25 depicts the age profiles of **total public transfer inflows** relative to average labour income for 2018 and 2019.

Public transfer inflows, both in-kind and in-cash, are funded by public transfer outflows, which include taxes, other public revenues, and social contributions. The age profiles for **public transfer outflows** are calculated in two ways — by source and by purpose. *Per capita* age profiles for public transfer outflows by source of funding are calculated separately for: taxes on asset income; taxes on payroll and the workforce; taxes on goods and services; social contributions; and other current transfers (Figure 26).

The age profile for **public transfer outflows** is broken down according to the age profiles of its components according to the, following methodology:

- > taxes on asset income — using the EU-SILC variables on asset income (interest, dividends, profit from capital investment in unincorporated enterprises and income from the rental of property/land);
- > taxes on payroll and the workforce — based on the age profile of labour income (already estimated);
- > taxes on goods and services — based on the age profile of private consumption;
- > social security contributions — based on the age profile of labour income;
- > other current transfers — uniform distribution across all ages.

Figure 25

Total public transfer inflows, Serbia, 2018-2019

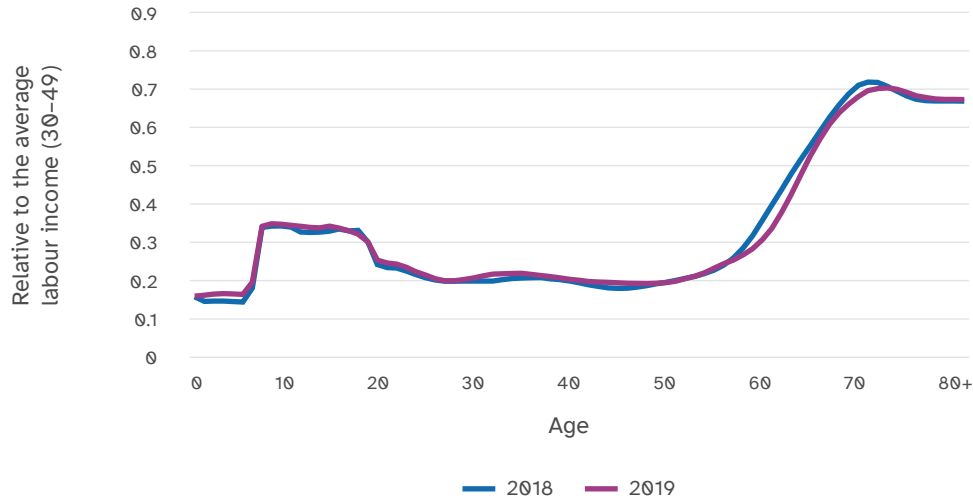
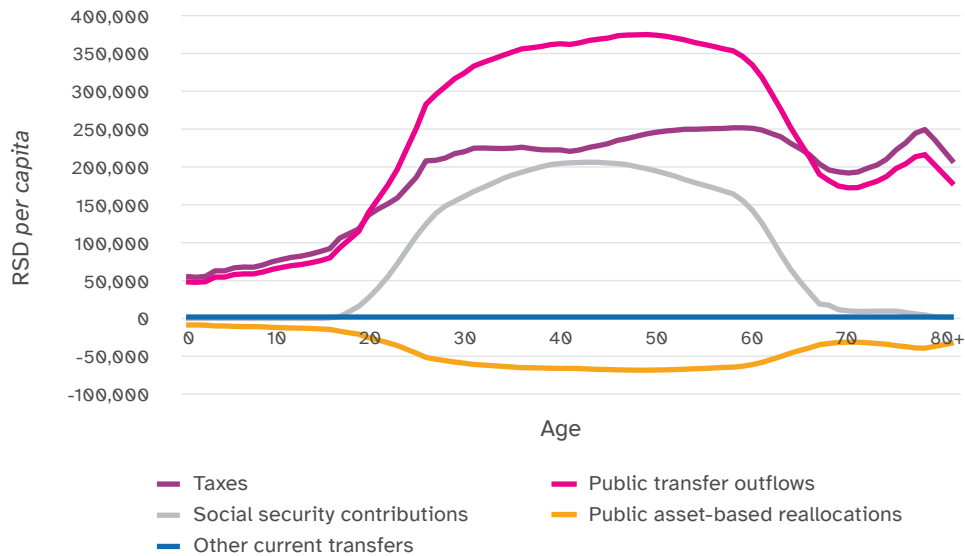


Figure 26

Total public transfer outflows by source, Serbia, 2019



Outflows are mainly paid by the working age population (the largest part of taxes and social contributions in Serbia are collected from the working ages between age 21 and 59), but they are also spread out across different ages owing to consumption taxes. With the same share of **53.7 %** as in

2018, **taxes on consumption** made up the largest part of **total public transfer outflows** in 2019 as well. Age profiles for **public transfer outflows** are calculated according to purpose for the five major functions: education, health, pensions, other in-cash, and other in-kind. By definition, public transfer inflows and outflows must be equal for each type of public program, therefore, macro controls for these outflow categories are equal to the macro controls for the corresponding public transfer inflows categories.

In Serbia, there is no transparent information on precisely how public revenue is used for funding public programs. All public revenues are pooled into a general fund, which is then used to support all public programs. This means that all functions have the same age profile, which is the general public transfer outflows age profile estimated by source, only varying in magnitude, adjusted to match the aggregate controls (Figure 27). Looking at the *per capita* age profiles of **public transfer outflows** by purpose, it can be seen that the most significant source of public transfer outflows in Serbia were pensions.

Figure 28 shows that **public transfer outflows** for children relative to the average labour income are almost the same in 2018 and 2019. The difference between these two years for working age people and older persons is driven by the shape of the age profiles for the category of taxes on asset income, profits, and capital gains.

Net public transfers are equal to public transfer inflows less public transfer outflows, including public transfer to and from the rest of the world. Standardly, children and older persons have **positive** net public transfers because of large education transfers to children and large pension and health care transfers to older persons. Conversely, working age adults have **negative** net public transfer as the burden of funding transfers to children and elderly (through taxes and social contributions) falls on them.

Figure 27

Public transfer outflows by purpose, Serbia, 2019

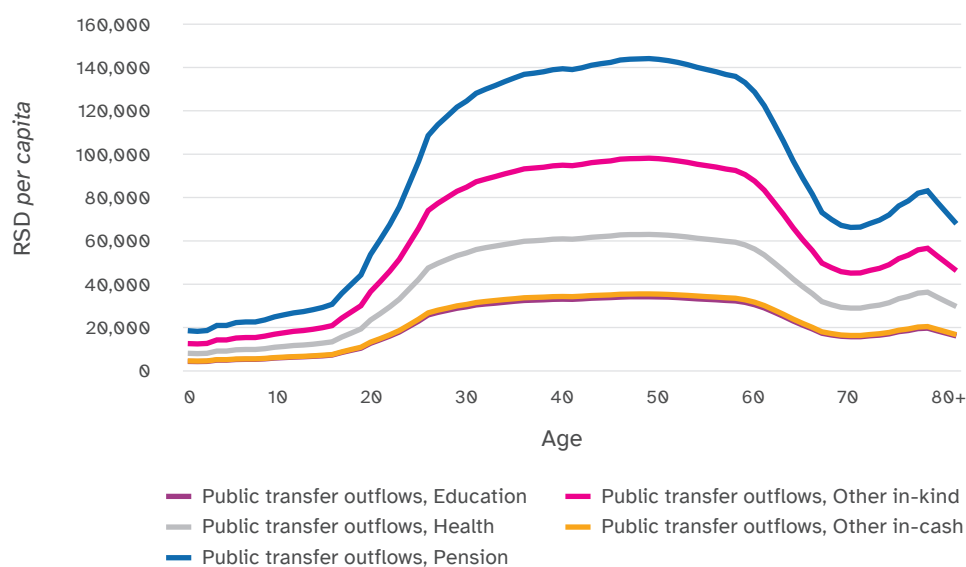
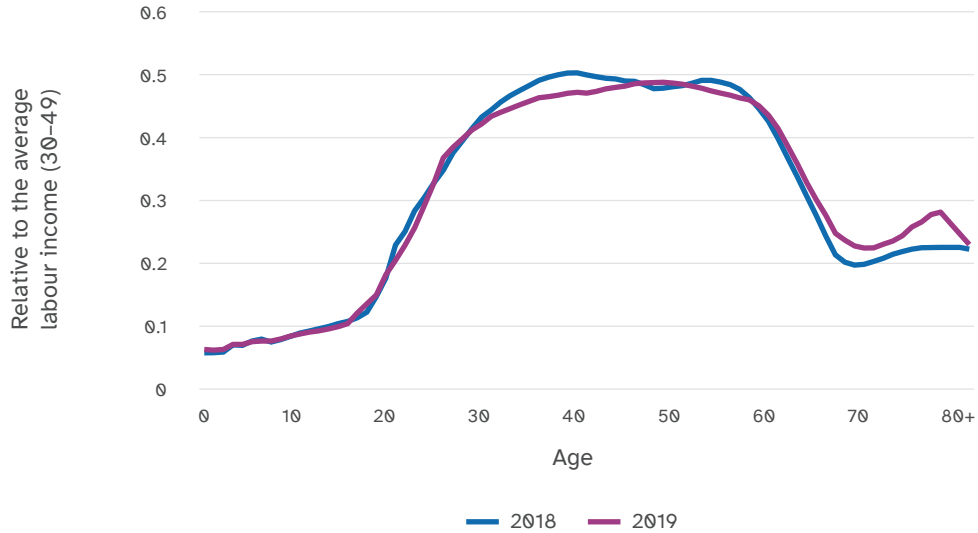


Figure 28

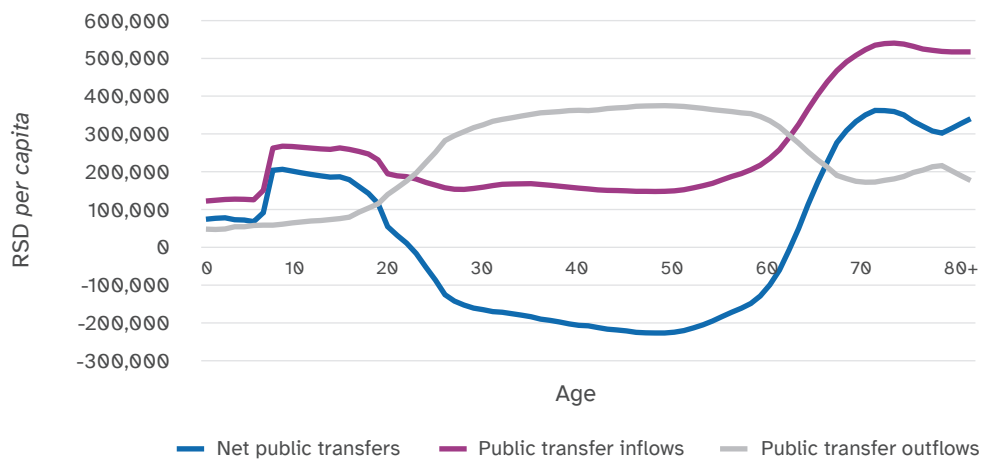
Total public transfer outflows by source, Serbia, 2018–2019



The data show that net public transfers are positive for children until age 21, meaning that they are net beneficiaries of public programs. After this age they become negative until age 62, with people in this age gap functioning as net givers within the state, before turning positive again at mature ages above 62. (Figure 29). **Total net public transfers** in Serbia for 2019 were positive (**49.2 billion RSD**), which means that the government spent more on transfers than it received from households.

Figure 29

Net public transfers and their subcategories, Serbia, 2019



2.2. Public asset-based reallocations

Public asset-based reallocations are calculated as public asset income less public saving.

Public asset income is the sum of **public capital income** (that is, equal to the public net operating surplus) and **public property income**. Asset income is a net inflow for the taxpayers if positive and a net outflow if negative. Public property income is the difference between property income inflows and outflows, where inflows includes income from interests, dividends and royalties earned from natural resources, while outflows include interest payments on public debt.

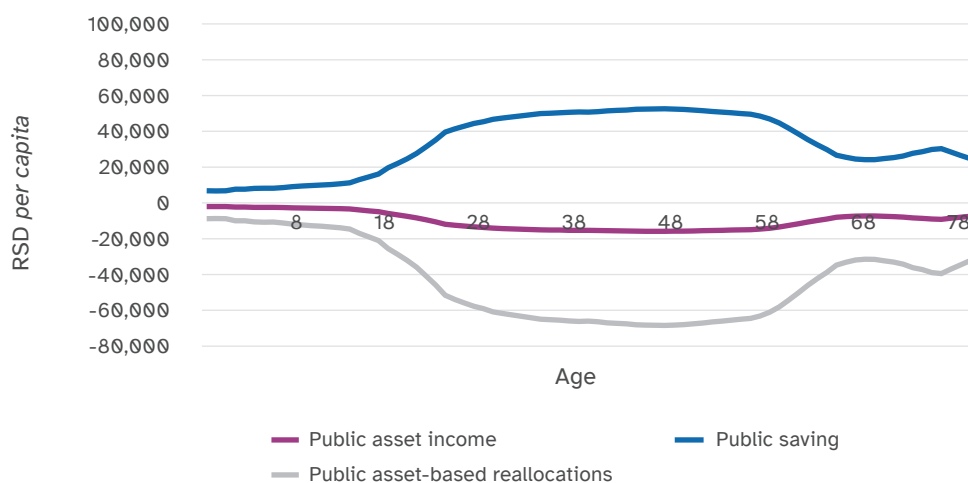
Public asset-based reallocation arises because the government owns asset and owes debts. Inflows occur when government earn public assets or borrow, while outflows occur when government have property income outflows, paying interests on debt and save.

Age profiles for both asset income and savings are calculated using the age profile for the public transfer outflows (generated as the sum of taxes, social contributions and other current taxes). **Public saving** recorded in the NTA system is equivalent to the net public saving from the SNA. If positive, public saving generates an outflow from taxpayers, while public dissaving, or the accumulation of public debt, generates an inflow to taxpayers. In the case of Serbia in 2019, there was a small **negative public asset income** (net outflow for the taxpayers) **less positive saving** (that also generates an outflow from taxpayers), resulting in **negative** public asset-based reallocations (Figure 30).

Public asset-based reallocations are assigned to the taxpayers because they finance public investment and are responsible for paying debt. **Public saving** as reported by the Serbian SNA for 2019 equaled **244.7 billion RSD**.

Figure 30

Public asset-based reallocations and their components, Serbia, 2019



3. Private reallocations by age

Private reallocations consist of:

1. Private transfers; and
2. Private asset-based reallocations.

3.1. Private transfers

Private transfers include flows between different households (including flows between households and the rest of the world) and among members of the same household. Private transfers consist of inter-household and intra-household transfers.

3.1.1. Inter-household transfers

Inter-household transfers are flows between households or flows between households and the rest of the world. These transfers include alimony payments, gifts, payments from/to abroad entities, and all other transfers that flow from one household to another. By definition, the difference between inflows and outflows of private inter-household transfers equals net private transfers from the rest of the world as reported in the SNA. In a closed economy, inflows are equal to outflows.

Aggregate controls for inflows and outflows were estimated using miscellaneous current transfers reported in the SNA, which mainly includes the transfers between households. These are calculated as an aggregate for private transfer outflows, adjusting the private transfer inflows in such a way that the difference between them equals net inter-household transfers.

Age profiles for private inter-household transfer inflows and outflows are estimated using EU-SILC variables on “**Regular inter-household cash transfer received**” and “Regular inter-household cash transfer paid”, respectively. In this context it is presumed that inter-household transfers flow from and to household heads, since data from the EU-SILC are available only at the household level. Therefore, there are no inter-household inflows/outflows for children. **Total aggregate inter-household transfers** for Serbia in 2019 amounted to **403.7 billion RSD**.

Figure 31 shows that inter-household transfers appear somewhere at the age of 19 years, which is explained by the definition that children cannot be identified as the household head. The highest level of these transfers was documented for persons above the age of 70 years. Considering that inflows/outflows flow to/from the household heads, the shape of the age profiles reflects the age pattern of the household heads reported in the survey used for this purpose.

Serbia is a net recipient of transfers from the rest of the world mainly due to **remittances**. The treatment of remittances in the NTA system differs based on whether the person is considered a resident of the country of origin or not. If the family member is working abroad temporarily, he or she is considered a resident of the country of origin not the country in which he or she is working. Thus, the remittances are classified as labour income of the country of residence and not as a transfer from ROW (the rest of the world) (UN, 2013).

Figure 31 depicts the net inter-household transfers with the remittances treated as inter-household transfers. With the total amounts of **423.8 billion RSD** in 2018 and **418.4 billion RSD** in 2019, remittances accounted for **8.2%** and **7.6%** of Serbian GDP, respectively. This means that a significant share of household final consumption expenditure in Serbia is financed from private transfers from abroad. The large inflows of these transfers are also typical for other Western Balkan countries (Bosnia and Herzegovina, North Macedonia, Albania, and Montenegro).

In order to observe the impact on the life cycle deficit due to the financing of consumption by remittances in this volume, as well as on account of the sensitivity of estimates to definitional changes, an alternative approach with a different treatment of remittances was applied for the purposes of this analysis. The modified LCD, with the remittances treated as labour income, is shown in the Figure 32 and Figure 33.

It should be noted that, due to lack of information on age of workers abroad, only **aggregate values** were adjusted. The results obtained from this methodology show that the different treatment of remittances as either labour income or as transfers among households in the NTA estimation greatly affects the level of the labour income and life cycle deficit age profiles. The change in the definition of remittances resulted in an increase in aggregate labour income estimates from **2,715.1 billion RSD** to **3,135.2 billion RSD** and, consequently, in a decrease in the estimate of the life cycle deficit from **948.1 billion RSD** to **528.1 billion RSD**.

Figure 31

Net inter-household transfers, Serbia, 2019

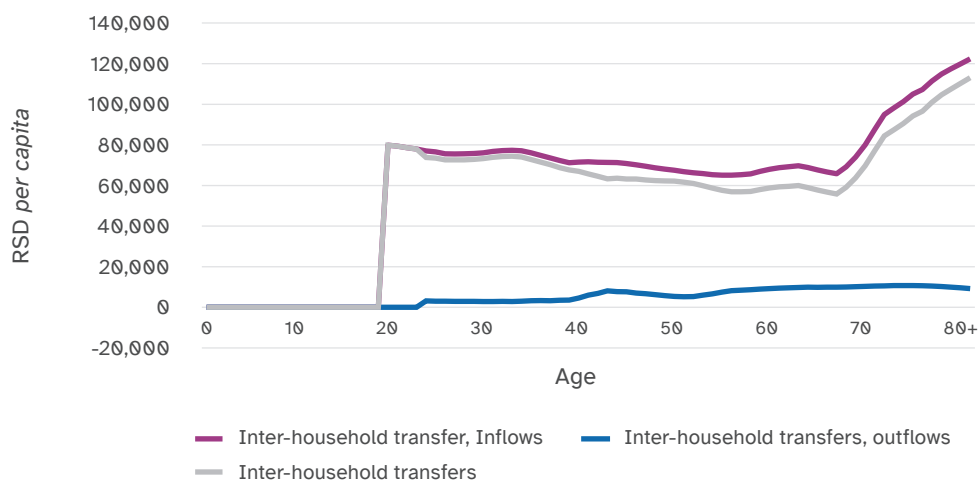


Figure 32

Per capita LCD, Serbia, 2019, different treatment of remittances

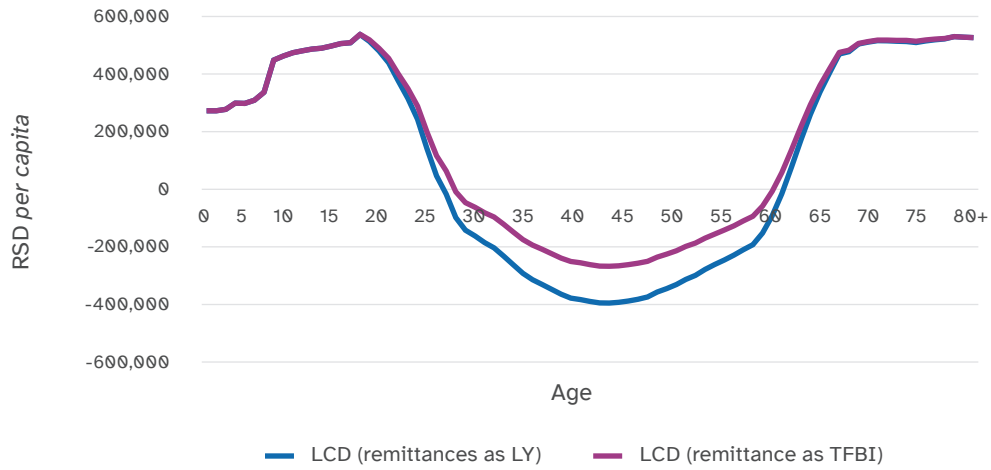
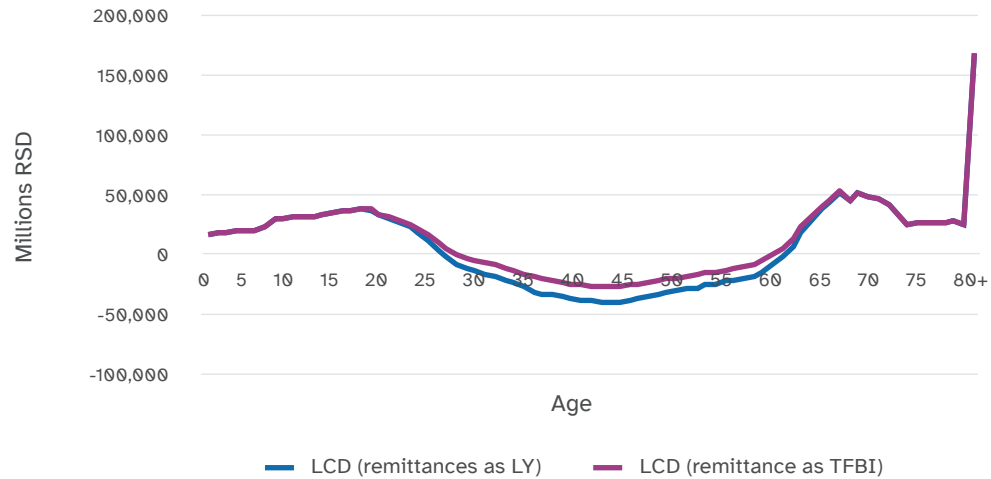


Figure 33

Aggregate LCD, Serbia, 2019, different treatment of remittances



However, the balance of payments (BoP) item included in the system of national accounts (and later in the NTA system) that refers to remittances is **personal transfers (current transfers between resident and non-resident households)**. Both on the credit side (inflows) and the debit side (outflows), this BoP item definitely does not include any transfers from residents (in the case of inflows) / non-residents (in the case of outflows) which are temporarily abroad and are still treated as residents of the country of origin. In order to be in line with Serbian SNA and BoP, it was decided that the initial treatment of remittances would be applied in the NTA estimations. Hence, the remittances were finally treated as **private inter-household transfers**.

3.1.2. Intra-household transfers

Intra-household transfers represent flows among the members of the same household. SNA does not contain information on intra-household transfers. The aggregate value of intra-household transfers equals zero, as intra household transfers present transfers **within the same household**. Private intra-household transfer inflows equal private intra-household transfer outflows at the household level. Inflows and outflows for private intra-household transfers are estimated indirectly as the balancing item between private consumption and disposable income at each age, where all age profiles used for their calculation are adjusted to NTA macro aggregates.

Inflows are transfers of income received by individuals from other individuals within the same household while outflows are transfers of income paid by individuals to other individuals within the same household.

The age profiles of intra-household transfers are estimated based on the household structure established by the EU-SILC and the age profiles of components that have already been calculated and adjusted to the NTA macro controls. The first step is computing the deficit or surplus, as the difference between disposable income and private consumption, for each member of the household. The disposable income of a household member is calculated as the sum of **labour income (YL)**, **public transfers in cash (TGIC)**, and **inter-household transfers (TFB)** less **taxes on labour income (TGFYL)** and **consumption (TGFC)**, **social contributions (TGP)**, and **other public revenues (TGX)**:

$$\text{INC} = \text{YL} + \text{TGIC} + \text{TFB} - \text{TGFYL} - \text{TGFC} - \text{TGP} - \text{TGX}$$

The consumption of an individual member of the household is **private consumption (CF)** less **imputed rents (CFR)**:

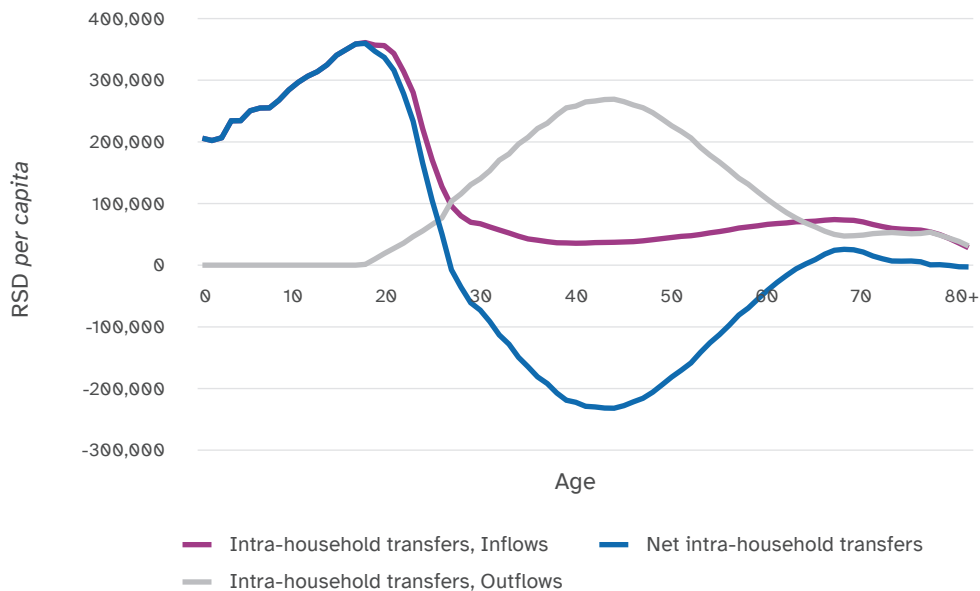
$$\text{CONS} = \text{CF} - \text{CFR}$$

Age profiles for inflows and outflows are estimated following the NTA intra-household calculation algorithm and using the STATA code given at the NTA website. Household members with a deficit receive transfers from household members with a surplus. By definition, heads of household are the owners of the asset-based revenues. In this approach, after the deficit of the non-heads is covered, the remaining surplus of the household is transferred to the household heads to be saved. On the other hand, all deficits that exceeds the household total surplus are financed by the household head through asset-based reallocation. Consumption of **owner-occupied housing** is treated separately. For owner occupied housing, inflows for non-head household members are equal to their consumption of owner occupied housing, with no outflows for non-heads. For heads of household, outflow is equal to the total consumption of owner occupied housing by non-head members. After inflows and outflows are obtained, outflows are adjusted to match the inflows (due to differences between the national population and the survey population).

Intra-household inflows and outflows for Serbia in 2019 (Figure 34) show that children from age 0 to age 17 were pure beneficiaries of private transfers in the form of transfers from parents/legal guardians to children to finance their consumption, as presumably in this system they receive inflows but do not make any transfers to other age groups. Hence, **net intra-household** transfers were **highest for children**. As these young persons approach adulthood, these inflows start to decline as they enter the labour market and into the surplus ages. The data indicate that persons younger than 26 are the only net recipients of family transfers. Only after age 26, when the amount of resources transferred begins to exceed that of resources received, do they become net givers and from the age 30, inflows are relatively constant at the low level. The **outflows** appear to be concentrated in the **working ages**, with individuals around 40 years seen as the peak age for the source of funds. During the working ages, net intra-household transfers are negative. They become positive again after the retirement age, when inflows again exceeds outflows.

Figure 34

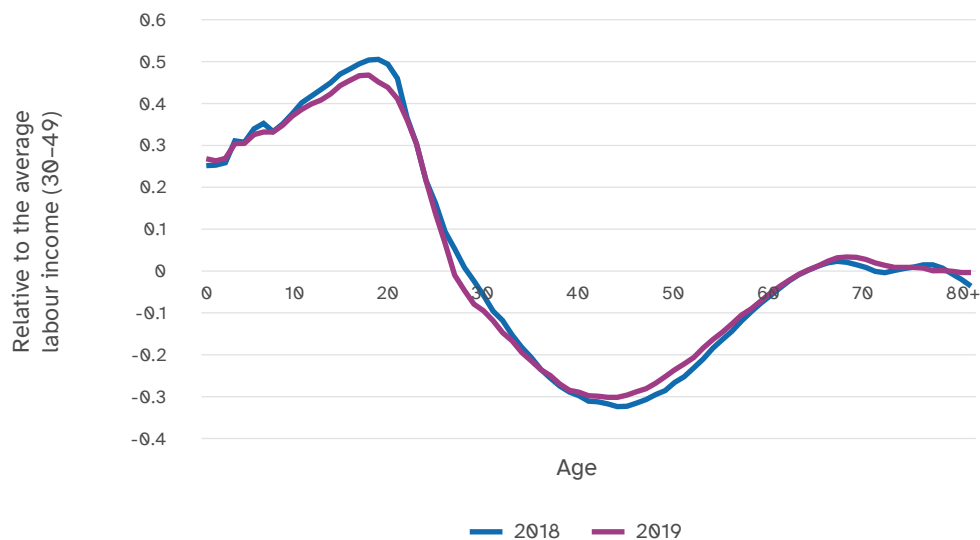
Net intra-household transfers and their subcategories, Serbia 2019



The **private transfers** in Serbia NTA in 2018 amounted to an aggregate total of **403.7 billion RSD**, representing **89.1% of total transfers** in 2019. Figure 35 shows that the intra-household inflows for children were a bit lower in 2019 than in 2018. The duration of negative net intra-household transfers appears quite stable between these two years.

Figure 35

Net intra-household transfers, Serbia 2018–2019



3.2. Private asset-based reallocations

Private asset-based reallocation is calculated as private asset income less private saving. **Private asset income** (representing an aggregate value of **788.6 billion RSD** in Serbia in 2019) consists of capital income and net property income from ROW (for households, corporations, and NPISHs).

Private capital income includes:

- > capital income from owner-occupied housing (the net operating surplus of households and NPISHs);
- > net capital income of corporations, adjusted to include the capital share of taxes less subsidies on production;
- > net capital income from mixed income adjusted to include the capital share of taxes less subsidies on production.

Net capital income from mixed income represents the portion of mixed income of the household sector that is estimated to be a return on capital and includes 1/3 of the mixed income.

Property income is classified by the NTA into two categories: private interest (as the difference between inflow and outflow) and other property income obtained from the NA. It comprises of payments of interests, royalties, rent, and dividends.

Private saving, with a total amount of **25.1 billion RSD** in 2019, is estimated as the final balancing item in NTA. Private saving at age a is calculated as the sum of **labour income, public transfers, private inter-household transfers, private intra-household transfers, private asset income, and public asset income**, less **consumption and public saving**:

$$S^f(a) = Y^l(a) + \tau^g(a) + \tau^{intra}(a) + \tau^{inter}(a) + Y^{Af}(a) + Y^{Ag}(a) - C(a) - S^g(a)$$

The age profile of private asset income is mostly based on the age group of the respective heads of household. Property income is estimated separately for interests and other property income using the EU-SILC data on asset income, profits and capital gains available at the household level, assigned to the household head. The same approach has been used for the estimation of taxes on asset income.

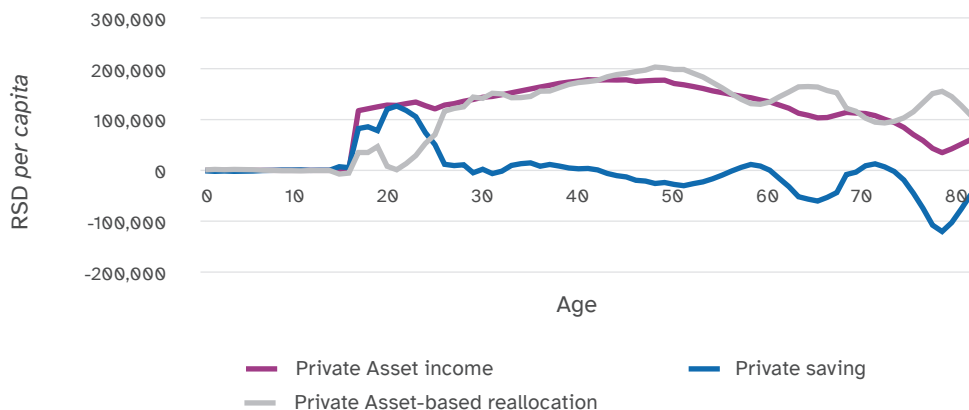
The age profile of capital income is estimated separately for:

- > income of corporations – using data on asset income from the EU-SILC data assigned to the household head;
- > income from owner occupied housing – the age profile of imputed rent was used;
- > income of unincorporated enterprises (capital share of mixed income) – using the age profile of earnings from self-employment (the same age shape as for the labour share of mixed income).

The age profile of **private asset income** in Serbia (Figure 36) is shown to follow the following pattern: individuals build up assets from their earliest working age to fund their consumption during retirement. Therefore, the values for children are zero. More precisely, according to the data, private asset income starts to rise from the age of 15 (when the younger adults enter the labour market), reaches its highest values between the ages of 39 and 49, during the most productive working period, and then starts slowly to decline after retirement age.

Figure 36

Private asset income, saving and asset-based reallocations, Serbia, 2019



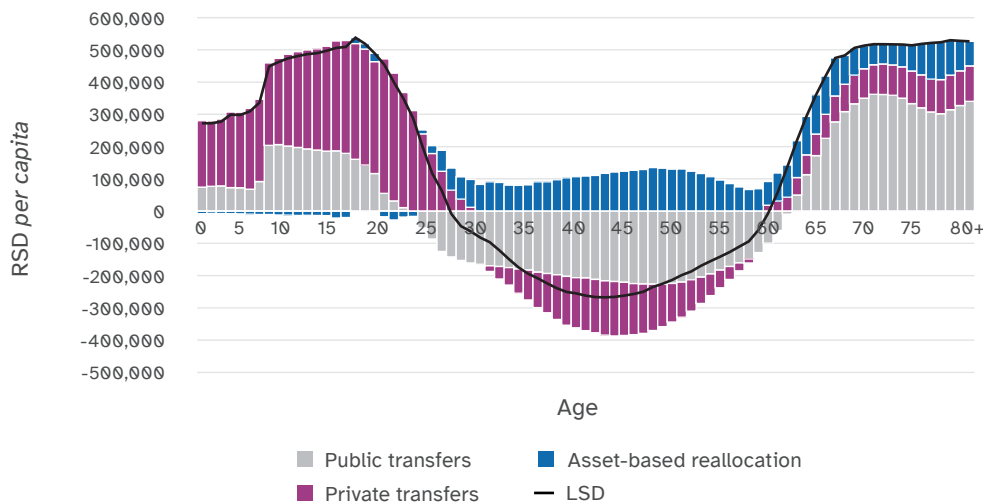
Private saving is the final balancing item in NTA and hence calculated as residual, after all other age profiles have been defined and estimated. In Serbia private saving in 2019 was documented as mostly positive until age 42. Positive saving means that those age groups derive income from savings, which actually represents dissaving. After age 42, it was seen to remain mostly negative, explained by the consumption of older persons being largely financed through public transfers and to a lesser degree through asset-based reallocation.

Findings

The deficit or surplus of an individual, a household or a nation must be matched by age reallocations consisting of net public transfers, net private transfers, and asset reallocations (Figure 37). The reallocation systems that support children in Serbia are primarily **public and private transfers**.

Figure 37

Funding the *per capita* Life cycle deficit, Serbia, 2019



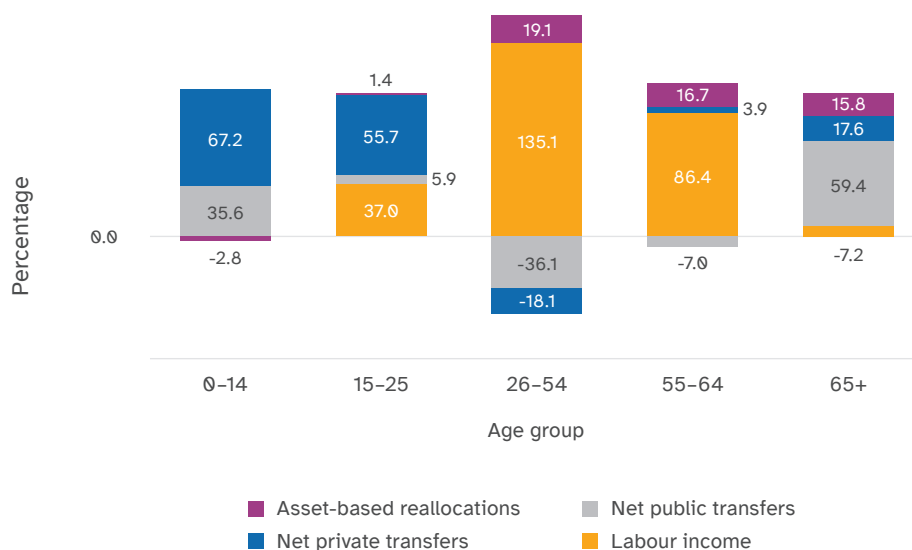
The surveyed data show that during **childhood and youth**, individual consumption is financed mainly by **private transfers** from the adult members of the family (parents), with public transfers less significant and mainly in-kind in nature, through education and health systems. **Older people**, on the other hand, appear to finance their life cycle deficit mainly through **public transfers**, and, to a lesser extent, from private transfers and asset-based reallocations. Older persons can generate asset-based reallocation inflows by earning asset income on their accumulated wealth and by dissaving or liquidating their assets. In Serbia, the data show that the asset-based reallocation age profile is practically zero until age 25, but that afterward it grows continuously until reaching its maximum value around the age 47/48, then slightly decreases and remains fairly stable until the final ages. The consumption of **pensioners** appears to be financed mainly through the **retirement and survivor pension system** in the form of **public cash benefits**. Alongside this, older persons are also the main beneficiaries of in-kind transfers, such as health care and long-term care.

Asset-based reallocations were shown to be producing inflows to most working ages, with public and private transfers producing outflows at the same ages. In particular, for ages 26–59 labor income was documented as higher than consumption expenditure, thus yielding a surplus in the difference between labor income and consumption. The data show that this surplus is in part transferred to the government in the form of taxes, while the rest can be transferred to other family members or saved. For children with no income of their own, private transfers must cover not only consumption but also public transfer outflows (i.e., indirect taxes). The largest net outflow was detected at around age 42.

Figure 38 shows the financing of consumption in Serbia for the year 2019. It indicates that **transfers** are the largest financing component in covering the consumption needs of the **young and older persons**, with **labour income** generally serving this purpose for **working age people**.

Figure 38

Financing of consumption, Serbia, 2019



The financing of consumption of the children up to age 14 was found to be primarily comprised of private and public transfers, with **private transfers** accounting for **67.2 %** and **public transfers 35.6%**, with **asset-based reallocations** almost negligible, accounting for just **2.8%**. Financing the consumption of children through asset-based reallocations is possible only in the form of student loans. For the age group 15–25, consumption was documented as still heavily supported by **private transfers** at **55.7%**, but financing from own **earnings** was seen as already significant at **37%** of this age group’s consumption. **Public transfers** represented the major source of support to older persons at **59.4%**, while **private transfers** and **asset-based reallocations** accounted for **17.6%** and **15.8%** of their consumption, respectively. The working age group from 26–54 were observed as generating by far the largest share of labour income and make the most significant contributions to both private and public transfers. With the labour income of this group about **35%**

higher than their consumption, they are substantial net producers. This **labour income**, together with **positive net asset-based reallocations of 19.1%**, provides them with sufficient resources to be **net givers** of both **public and private transfers** in amounts that represent **36.1%** and **18.1%** of their consumption, respectively.

Ratios in Table 3 compare differences within the financing of consumption between 2018 and 2019.

Table 3

Financing of consumption, Serbia, 2018–2019

Age	Labour income		Net public transfers		Net private transfers		Asset-based reallocations	
	2018	2019	2018	2019	2018	2019	2018	2019
0–14	0.0%	0.0%	33.3%	35.6%	69.3%	67.2%	0.0%	-2.8%
15–25	33.4%	37.0%	5.6%	5.9%	56.8%	55.7%	4.2%	1.4%
26–54	130.0%	135.1%	-37.4%	-36.1%	-15.7%	-18.1%	23.2%	19.1%
55–64	78.4%	86.4%	-2.0%	-7.0%	3.1%	3.9%	20.4%	16.7%
65+	5.8%	7.2%	63.6%	59.4%	17.8%	17.6%	12.8%	15.8%

Considering the results in the table, it can be concluded that there is relative consistency between the two years in the sources of funding consumption by age.

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