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MASTER'S THESIS

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EVOLUTION OF TRANSFERS ACROSS DIFFERENT AGE GROUPS IN SLOVENIA

Ljubljana, June 2014 TANJA ISTENIČ

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INTRODUCTION

During their life, humans go through two stages of their economic dependence: when they are children and when they are old. Between these two stages, there exists a middle stage of production surplus. During childhood and at older ages, consumption exceeds earnings. This difference has to be financed through transfers (public or private) or through "asset-based reallocations" originating from interaction with assets (like increasing debt, return on assets or reduction of wealth). In a period of production surplus, earnings exceed consumption. The surplus is used for transfers to the young and old and for the accumulation of wealth (Lee, 1994b, pp. 1027-1028). Transfers between different age groups are referred to as intergenerational transfers. The difference between consumption and labour income at different ages is defined as "lifecycle deficit" (hereinafter: LCD). Positive LCD of young and old and negative LCD of prime-age adults is a feature of all contemporary societies (Lee & Ogawa, 2011, p. 109). At the aggregate level, the economic lifecycle reflects age structure of the population and is dominated by a large lifecycle deficit of children and old-aged people (United Nations, 2013, p. 3).

Intergenerational transfers have a huge impact on the development and well-being of different age groups in all the societies. Young generations' development severely depends on the resources they receive from productive members of society, mostly in a form of health and education transfers. Well-being of older population also vitally depends on intergenerational transfers, especially through programs of health care, pension system or some other income support, like through familial system (Mason, Lee, Tung, Lai, & Miller, 2006, p. 3).

Around 1950, couples in many industrialized countries increased their childbearing and this resulted in the so called "baby boom". In the developing world, a similar trend existed as a consequence of child mortality decline. Therefore, in mid-1970s, the working-age population started to increase. Another reason for the increase in the number of workers is the reduction of women child-bearing, which means that there are more women in the labour market. In many contemporary societies, these huge working-age populations have started to retire. The future world population will be older than ever before. In 2011, in the world as whole, the working-age population outnumbered those aged 60+ by 4 to 1. Until 2050, this ratio is projected to be 2 to 1 working person to 60+ person (Mason & Lee, 2011b, pp. 4-5).

In the next decades, the age structure of European population will therefore change dramatically. The babyboom generations have just started to retire. On the other side, the decreasing fertility rate presents important political, economic and social challenge (Lutz, O'Neill, & Scherbov, 2003, p. 1992). The childbearing, school attendance, productivity, labour force participation, consumption and savings strongly depend on the age of the individual. Therefore, the population age structure gradually influences the state of economy (Mason & Lee, 2011b, p. 5).

Economic effects caused by a changed number and behaviour of some age group might be mediated by the market (e.g. a rapid decrease in the number of workforce may increase general

wage levels; an increased number of old people, which are most likely to hold assets, depresses interest rate). However, many interdependencies across age groups cannot be mediated by marketplace, but rather within families, where resources flow from working-age population to children and old people (Mason & Lee, 2011b, p. 7).

Slovenian population projections assume that low fertility rate will gradually increase in the future, but at the same time the mortality will continue to decline, which will, together with the baby-boomers entering the age group 65+, strongly increase the percentage of older people. On the other hand, a decrease in the percentage of working-age population is expected (EUROPOP2013 - Population projections at national level, 2014). The changes in the age structure will probably have a significant effect on intergenerational transfers, on both intra- and intergenerational ones (Prskawetz & Sambt, 2014, p. 969). With the changes in age structure, data broken down by age are becoming more and more important in economic analyses.

In the last decades, there has been a great improvement in measuring, modelling and assessing the intergenerational transfers on micro and macro levels (Mason et al., 2006, p. 3). Recently, a new methodology called the National Transfer Accounts (hereinafter: NTA) has been developed. It presents a systematic and comprehensive approach in the measuring and analysing of economic flows among different generations (Mason & Lee, 2011b, p. 7).

Because the age structure influences intergenerational transfers and those influence the state of economy, there is a need to analyse them carefully. The main purpose of the master's thesis is to comprehensively analyse transfer flows among different age groups and compare their development over time by calculating the national transfer accounts for Slovenia. In the master's thesis we create age profiles for different years and analyse how much of labour income individuals earn and how much do they consume at different ages. We present how the surplus of consumption over the labour income is financed through three different channels: public transfers, private transfers and asset-based reallocations. Labour income, consumption, transfers and asset-based reallocations will be compared over time. We are able to provide fully comparable results for the time period between 2000 and 2010.

As already mentioned, in the early years of human life, there exists a period of crucial dependency on transfers from adults. To survive, children need severe economic support of their parents. Some elderly could work and take care of themselves until the very end of their life. But, usually, this is not the case. When their income is not high enough to cover their consumption, they start to depend on other people. With economic development these periods of dependency have been gradually prolonged. Young people, because of a longer education period, remain economically dependent for a longer time. On the other hand, in the developed countries, the elderly usually do not work as long as they are actually capable. Slovenia is in international comparisons highlighted as a country with very low level of employment rate in the age group 55-64 (Employment rates by sex, age and nationality, 2014). On the basis of these arguments, we propose the first hypothesis.

Hypothesis 1: In Slovenia, there exists a strong economic lifecycle at the individual level relative to the life expectancy at birth and compared to other countries in the entire 2000-2010 period.

In the last decade, the age structure of the population has gradually changed. Changes in the age structure usually cause changes in consumption pattern, productivity level, and labour force participation. Next, due to increasing pressure of the population aging, changes in the pension system have been introduced. Furthermore, an increasing percentage of young people are enrolled in tertiary education, therefore, they enter the labour market later. During development, public sector overtakes the function of children care from the families. These causes change the pattern of all economic flows, private and public net transfers and private and public asset-based reallocations. Based on these arguments, we propose the second hypothesis.

Hypothesis 2: The patterns of labour income, consumption, transfers and asset-based reallocations have changed over time.

The master's thesis is divided into five chapters. The first two chapters contain the theoretical part of the master's thesis. In these chapters, we present the main theoretical background on which the NTA methodology stands. In the first chapter, we present parts of the generational theory that are directly linked to the NTA: the lifecycle theory, the motives for reallocation and the direction of flows. In the second chapter, we outline the basic principles of the NTA methodology. The last three chapters represent the main part of the master's thesis, the empirical part. In chapter three, we present aggregate values for consumption, labour income, transfers and asset-based reallocations. Apart from the results on aggregate values, we present the methodology and the data we used. In chapter four, we present the obtained age profiles of all the disposable income (labour and asset income, public and private transfers) variables and those which present the use (consumption and savings). We present the methodology and data used and, also, the obtained results. In the last chapter, we present the age profile of the lifecycle, its magnitude and the financing of consumption.

1 THE GENERATIONAL THEORY

In 1958, Samuelson introduced his overlapping generations' model, which includes demography in economic modelling. The model assumes that during their life people go through two periods: when they are young and when they are old. When they are young, they are able to work for forty-five years, and then they retire for another fifteen years. Even though they work only forty-five years, they want to consume goods and services during their entire life. The consumption of children is assumed to be part of working parents' consumption, but the problem arises in the period of retirement when old people want to consume but they do not produce. An old person should therefore save part of her product of the working-age for later consumption (Samuelson, 1958, p. 468).

In the standard neoclassical growth model presented by Solow, rapid population growth should be accompanied by a greater investment to maintain the level of capital per head. Higher

investment results in lower consumption (Solow, 1956, pp. 68-73). This means that the smaller the population, the better. The conclusion made by Samuelson, on the other hand, is different from Solow's conclusion. According to the overlapping generations' model, growth in the population has positive effects, because having many children means living a more comfortable life when old. In this way, Samuelson merges the neoclassical and consumption-loan assumptions, and concludes that an increase in population influences wealth more positively than it is predicted in the standard neoclassical model. Population growth therefore causes an intergenerational transfer effect, which increases economic welfare (Arthur & McNicoll, 1978, pp. 241-242).

Even though the overlapping generation model is a rich and productive model, it relies on unnecessarily simple demographic assumptions, including only two age groups and also assuming perfect surviving until the end of the living period. The crudeness of such model makes its empirical implementation impossible. There is a need for modelling at least three age groups: dependent children, working-age adults and those who are retired (Bommier & Lee, 2003, p. 152).

After Samuelson's model, Arthur and McNicoll presented their own model, which is a standard consumption-loan model with some additional assumptions. Firstly, an individual presents a basic unit. Secondly, consumption and production are spread over a continuous age lifecycle. This means that individuals are analysed through their whole life-time, and not only after they have reached the age of 20 as in the standard overlapping generation model. Thirdly, perfect surviving is not assumed any more, they use age-specific mortality characteristics instead. The model can therefore also include transfers to young people (Arthur & McNicoll, 1978, p. 242). The listed assumptions make the model much more realistic compared to the previous ones.

According to Arthur and McNicoll, the lifecycle consumption differs from production and the difference goes in the form of intergenerational transfer from the producer to the consumer. The population growth has different implications on economic circumstances. They realize that what really influences the economic statement is the direction of flows (Arthur & McNicoll, 1978, p. 246). The flows are flowing downward when they move from older to younger. In such case, flows have a positive effect on economic growth. On the other hand, the flows can move upward, from younger to older, which has a negative economic effect (Mason & Lee, 2011b, p. 29).

The NTA are connected to several different topics and analyses. As the main part of the master's thesis is the empirical part, we have decided to present only the fields that are directly related to the NTA. In continuation, we therefore present the lifecycle theory and the motivations and directions of flows.

1.1 The Lifecycle Theory

People become more skilled and experienced throughout their life. Therefore, earnings increase with age. Older age, on the other side, brings a decrease in the productivity of the workers,

which, in most cases, leads to lower earnings. Therefore, the curve of life-time earnings becomes an inverted U-shaped curve (Mincer, 1958, p. 287).

The modern economic theory suggests that labour income actually depends on two behavioural factors that influence the shape of labour income profile: individuals' provision of labour and individuals' human capital investment over the lifecycle (Lee & Ogawa, 2011, p. 110).

Total labour income can be represented as a product of labour productivity index at a specific age and the number of producers of that specific age. Written in per capita terms:

$$y_a = \bar{y}_a \, l_a \tag{1}$$

where $\bar{y}_a$ represents the labour productivity index at age a and l_a denotes the proportion of the working population at age a. According to the modern theory, labour force participation maybe has an even greater effect than labour productivity. The per capita total labour income y_a is therefore also, according to the NTA, weighted by the proportion of the working population in the whole population. The decision to work changes over the lifecycle; the per capita labour income, measured in the NTA, is therefore able to reflect these preferences (Lee & Ogawa, 2011, p. 111).

There are different reasons for which labour force participation (l_a) varies across age a (Lee & Ogawa, 2011, p. 111). An individual's utility generally depends on the ratio between leisure and working time. An individual's behavioural choice between leisure and work affects her labour force participation (Lancaster, 1966, pp. 145-146). Different decisions about labour force participation between three main working age groups, probably has the main effect on the shape of the labour income curve (Lee & Ogawa, 2011, p. 111).

The first demographic group that strongly affects the labour income profile are adolescents and young adults, who balance between labour force participation and investment in their human capital (Lee & Ogawa, 2011, p. 111). The quality-quantity trade-off in a standard economic theory of fertility means a couple's decision between how many children they want to have (quantity) and how much they want to spend on each child (quality) (Becker & Lewis, 1973, p. 279). According to the theory of quality-quantity trade-off, there exists higher per capita human capital investment in the families with a lower number of children. Higher investments in human capital lowers participation rate today and increases productivity in the future (Becker, 1962; Mincer, 1962).

The second demographic group includes older people. Older people in the developed countries usually retire earlier than necessary, according to their health status. This is a consequence of two main reasons, the developed pension systems and the rigidities on the labour market. Retirement programs in most developed countries are very generous. This generous (early) retirement programs gravely reduce labour force participation, because of high opportunity costs

of working at old age (Gruber & Wise, 2002, pp. 1,25). There exists empirical evidence from the developed countries that workers respond consistently and strongly to the economic incentive to retire earlier (Börsch-Supan, 2000, p. 44). On the other side, rigidities on the labour market often encourage older workers to retire. Seniority-based remunerations usually raise the costs of employing old people, especially from the usual view of the employer on the lower productivity of the elderly (Lee & Ogawa, 2011, p. 111). With developed retirement systems and labour market rigidities, leisure becomes relatively cheaper compared to work. It is also important to mention that in reality people retire completely, meaning that they change their full-time work to complete retirement and do not decrease their working hours gradually as the theory usually assumes.

The third demographic group includes women. In the developed countries, their opportunity cost of labour force participation becomes low. A decreased fertility rate means less time required for childbearing and childrearing (Lee & Ogawa, 2011, p. 112). As a consequence, the labour force participation of women rises in time.

Apart from labour income, the consumption of an individual also defines her economic lifecycle. According to the Modigliani and Brumberg model, the utility of an individual consumer depends on the aggregate consumption of current and future periods. Additional resources are always allocated across time in the same proportion, in addition to the income accumulated before. The total consumption of a person, of certain age, will be proportional to the present value of total earnings over all of her life (Ando & Modigliani, 1963, pp. 56-57). The lifecycle hypothesis assumes that people prefer stable life-time consumption. During the working period, people's income exceeds consumption. In this period, people save. On the other hand, in people's early life and in the period of old age, consumption exceeds income. To achieve the desired level of consumption they must dissave (Samuelson & Nordhaus, 2002, p. 421).

At first glance, the described theory accurately presents the central concept of the NTA methodology, the lifecycle deficit. The lifecycle deficit presents the difference between consumption and labour income at the given age. The NTA then analyse how this difference is covered by specific economic flows. However, grave differences exist between lifecycle hypotheses and the NTA methodology.

The NTA typically estimate cross-sectional age profiles, averaged across all individuals of a given age, for a single survey year (Lee & Mason, 2011b, p. 34). The NTA results do not present the individual who maximizes his life-time consumption subject to life-time income. However, they present individuals' involvement in processes of intergenerational reallocation. In the standard lifecycle hypothesis there is no transfer motive (Lüth, 2001, p. 6).

The lifecycle model is a longitudinal concept, whereas the NTA results represent a cross-sectional snapshot in a certain period in time. Usually, no data exists on an individual's or cohort's entire life. Even if data existed they would represent happenings in the distant past

(describing, for example, events from 100 years ago) instead of describing the present, which is more interesting for us.

The concept of lifecycle deficit in the NTA is closely connected with the concept of net worth lifecycle wealth. The lifecycle wealth is the wealth needed to balance planned consumption and planned labour income in the remaining lifetime after some specific age. It is negative when a person of certain age expects to consume less than he will earn in the remaining lifetime. The negative lifecycle wealth is typical for children and young adults, because they expect to make huge net transfers in the future years. On the other hand, it is positive in the later years of life when expected consumption in the remaining lifetime exceeds labour income and expected net transfers become negative. At the end of a person's life the lifecycle wealth should be equal to zero, if no bequests are left for posterity (Lee & Mason, 2011b, p. 35).

The demand for lifecycle wealth can be satisfied by holding capital or by holding transfers (Lee & Mason, 2011b, p. 45). The wealth can be of three forms: the real (physical and human capital) wealth, credit wealth, and transfer wealth. The transfer wealth represents the expected present value of the difference between received and paid transfers, which are typically carried out through family or public sector, and sometimes through the market. A typical example of familial transfer wealth is the net support that old people expect from their adult children and, on the other hand, the bequest that adult children expect from their parents. Public transfers are typically carried out by general government through pension and health care systems. Market transfers are a consequence of borrowing and lending of the participants on the financial market (Lee, 1994b; Lee & Mason, 2011b).

In a closed economy, a transfer given by one person is a transfer received by the other. Therefore, at the aggregate level, positive and negative transfers must balance out. In an open economy, the sum of transfer flows is balanced with the sum of transfer flows from the rest of the world. When we look at the borrowing and lending, they also need to be balanced in a closed economy. Every debt of one person represents a credit to someone else. In an open economy, financial assets owned by residents of a specific country need to be balanced with the rest of the world. Finally, saving and dissaving does not need be balanced, even in a closed economy (Lee & Mason, 2011b, pp. 41-42).

1.2 Motives for Reallocation and Direction of Flows

Different reasons exist for accumulating wealth. One can accumulate wealth to achieve the desired lifecycle plans, for example the desire to consume more than one earns when old. One can also accumulate wealth to buffer risk, to provide bequest for his posterity or just for the pleasure of possessing something. Also, in line with the concept of accidental bequest without perfect annuitization, people accumulate more wealth than they spend before they die, because they want to be sure not to run out of resources if it happens that they live a very long life. Intergenerational transfers are closely linked to the lifecycle wealth. Transfers can generate

additional forms of wealth and represent a substitute for wealth accumulation (Lee, 1994b, pp. 1028, 1059)

Generally, reallocations can be of two types, they can be voluntary or enforced by law. Reallocations enforced by law are mainly public transfers that must be paid or received independently of a person's choice. On the other hand, voluntary reallocations exist, such as decisions about how many human capital investments will parents make to their children (Lee, 2000, p. 17).

Voluntary transfers are mainly private transfers. The NTA methodology differentiates between two types of private transfers, inter-household (between households) and intra-household (within households) transfers. Because of the direct measurement of inter-household transfers and, on the other hand, the indirect measurement of intra-household transfers, the latter become widely excluded from research works. Data show that intra-household transfers are significantly more important than inter-household transfers. Intra-household transfers generally represent about 90% of total private transfers in the NTA economies (including data on 23 countries), inter-household transfers therefore represent only 10% of all private transfers (Lee & Donehower, 2011, p. 186). In the developed countries the percentage of inter-household transfers is even substantially lower than 10%.

The income can be transferred in two different ways, in a form of bequests and in a form of *inter vivos* transfers. The *inter vivos* transfers represent transfers between living persons. The past research mainly analyses bequests. An important difference exists between them. *Inter vivos* transfers are intentional, meaning that they are much more illustrative in analysing the motives for intergenerational transfers (Cox & Rank, 1992, pp. 305-306). Bequests are usually distributed to all the children in the family equally while *inter vivos* transfers are subjectively dedicated to more needy children (Kohli & Künemund, 2003, p. 124).

Private transfers can be encouraged by different motives. The first motive for intergenerational transfers presented can be the most prominent one, the so called altruism. This motive was introduced by Barro and Becker (Barro, 1974; Becker, 1974). Altruism influences the utility of parents, because their utility does not depend only on the utility of their own consumption, but also on the utility of each of their children. Following this assumption, utility maximization equates additional benefit of an extra child and extra costs of rearing a child (Becker & Barro, 1988, pp. 1-2). Bringing them additional utility, altruistic feelings motivate adults to make transfers to their children. These feelings are, however, limited, because parents also care about themselves, their own future reproduction and the future ability to help their children and their parents (Lee & Mason, 2011b, p. 47).

Altruism is relevant also when we want to analyse public intergenerational transfers (such as the pay-as-you go system). Let us assume that a government lowers its taxes, which means that, according to the NTA methodology, it lowers public outflows and increases net transfers. Lower taxes are compensated by issuing bonds in the international markets. After a certain period, the

government increases taxes to repay the debt. Ricardian Neutrality suggests that with altruistic behaviour positive net public transfers from young to old will be neutralized with positive net private transfers flowing from old to young. The opposite direction of transfers creates no real effect (Lüth, 2001, pp. 7-8).

Pure altruism is usually not a dominant motive in economic literature (Kohli & Künemund, 2003, p. 129), basically because Ricardian Neutrality is not empirically significant (Andreoni, 1989, p. 1448). To make the altruistic motive more realistic, impure altruism was presented. Impure altruism is a combination of pure altruism and the selfish motive of the joy of giving, where the joy of giving motive emphasizes that people make transfers because their utility depends only on the size of the gift they give (Andreoni, 1989; Ribar & Wilhelm, 2002).

The second most usually analysed motive for reallocation, totally opposed to altruism, is the exchange motive (Cox & Rank, 1992, p. 305). The exchange motive is a self-interested motive, meaning that family members are non-altruistic. The transfers made represent payments in exchange of services provided by some family member. A typical example of the exchange motive is when children take care of their old parents in exchange of received estate in the future (Cox, 1987, pp. 510-511).

Stark (in Kohli & Künemund, 2003, pp. 128-129) builds a bridge between altruism and the exchange motive and introduces the so called demonstration effect. Through the demonstration effect, children get socialized and accept that they need to help the elderly. He empirically demonstrates that parents with children call their own parents more often to demonstrate their children the manners in society.

The next motive for private intergenerational transfers is the accidental (bequests) motive. In forming wealth, people must take into account the uncertainty of their longevity (Yaari, 1965, p. 137). Because people do not know the time of their death in advance they precautionary save. With precautionary saving they prevent too low consumption in the older ages in case that they will live longer than expected. When this person actually dies, she holds some wealth, which, after this moment, corresponds non-intentionally to the posterity in the form of an accidental bequest (Abel, 1985, p. 777).

Private intergenerational transfers are sometimes motivated by the liquidity constraint of the consumer. Family members sometimes help other members to overcome the liquidity constraint (Cox, 1990, p. 212).

An individual is not exposed to only one motive, but rather to several motives simultaneously. The motives for reallocation are important, because not only does the quantity of reallocation matter, its quality is also a factor. Transfers can be seen by the receiver differently if they are given with love or if they are self-interested (Kohli & Künemund, 2003, p. 126).

The NTA methodology does not concentrate on the motives for intergenerational transfers. It actually measures and analyses the flows between generations without direct analyses of motives. This theoretical foundation is important even though motives are mainly focused on the bequests. It can be seen that previous research was mainly focused on bequests rather than on *inter vivos* transfers. Nevertheless, the listed motives for reallocation are relevant also for *inter vivos* transfers.

In continuation, we would like to present the directions of flows, which consist of net private and public transfers and private and public asset-based reallocations. They can be presented through empirical evidence from past and today's economies.

People usually expect that directions of flows are repeated through time, from one generation to the other. Their expectations of repeated pattern of flows generate a specific form of transfer wealth. The current population is obligated to give support to the future generation through downward net transfers, resulting in negative transfer wealth. On the other hand, the current generation can obligate the future generation to provide net transfers in the form of upward net transfers, resulting in positive transfer wealth (Lee & Mason, 2011a, p. 79).

In the hunter-gatherer societies and also in the third world countries we can find mostly downward net transfers, from old to young people. The negative transfer wealth is the result of the costs of child-rearing. However, in most rich and demographically old developed countries, there exists a positive transfer wealth as a result of upward net transfers. This pattern is mainly a consequence of population aging in those countries, obligating younger people to give net support to the older people. In the developed countries, lower fertility rate brings a smaller number of needy children, but on the other hand, youth dependency is replaced with the dependency at old age. In all contemporary societies, no matter if they are rich or poor, old people do not earn enough to cover their consumption. This means that nowadays we have two needy groups: children and the elderly who depend on other people's support. However, in the hunter-gatherer economies only children depend on adults (Lee & Mason, 2011a, pp. 80-81).

According to the empirical evidence of 23 developing and developed contemporary societies, we can examine direction of total intergenerational flows. In poor countries nowadays reallocations containing all public transfers, private transfers and asset-based reallocations, flow mainly downward, from older to younger people. On the other hand, in the richest economies net intergenerational transfers flow mainly in the upward direction, from younger to old people. This is true also in the case of Slovenia, representing a developed economy with an older population, which shows that the population age structure influences the direction of flows strongly (Lee & Mason, 2011a, pp. 87-89).

In the next step, we can analyse intergenerational transfers separately by their components. We can establish some common characteristics of all contemporary economies: net private transfers flow downward, from older to young ages. In this case, net private transfers contain inter-household transfers and also intra-household transfers. There exists an explanation of such

direction of flows. In all contemporary societies, net public transfers to the elderly are high enough to let them support the younger generations (Lee & Mason, 2011a, pp. 91-93).

Whereas net private transfers flow downward in every analysed country, net public transfer flows vary between countries a lot. The direction of net public transfer flows depends not only on the economic development of a country, but also on the regional characteristics. In all European countries, for example, the flows are upward, as a consequence of generous pension systems. The estimated average public-transfer wealth is +1.8 years of labour income, meaning that an average person from an European country receives 1.8 years of labour income in excess of future tax payments through future public transfers (Lee & Mason, 2011a, p. 95).

However, in the United States net public transfers flow downward, not as a consequence of a different level of development, but rather as a consequence of the regional characteristics. The US population is young, compared to the one of European countries, and therefore the pension system does not need to be as generous as in other developed countries (Lee & Mason, 2011a, pp. 93-94).

Among all NTA countries, only in most of the European countries annual flows from the public sector are larger than those coming from the private sector. Because in all sample countries net private transfers flow downward, public transfers are high enough to make total net transfers flow in the upward direction only in European countries. In the case of Slovenia, the net private transfers exceed the net public ones, which forces total net transfers to flow in the downward direction, from older to younger (Lee & Mason, 2011a. pp. 100-101).

The direction of transfers provides an important measure if the fertility rate is too low and the population aging too severe. When transfers flow downward, lower fertility and higher population aging are beneficial. When transfer flow upward, lower fertility and older population worsen the standards of living. When we are imposed to the balanced transfer flows, changes in the age structure have no severe effect on the standard of living (Mason & Lee, 2011b, pp. 29). But relying on the current transfer wealth can be misleading. The implication of population projections shows that the majority of countries with downward total transfers flows today would benefit from a higher fertility and population growth in the future (Lee & Mason, 2011a, p. 102).

2 THE BASIC PRINCIPLES OF THE NATIONAL TRANSFER ACCOUNTS

The central goal of the NTA is to measure and analyse economic flows from generational perspective. The generational economy by definition contains “social institutions and economic mechanisms used by each generation or age groups to produce, consume, share and save resources” (Mason & Lee, 2011b, p. 7).

People's work and their production vary a lot throughout their lifecycle and depend on their biological characteristics, their culture, relevant institutions and their desire to consume. As a consequence of a changed pattern of producing and consuming throughout a person's life, there exists the economic lifecycle. Sharing and saving then rise as essential counterparts of the economic lifecycle. They present a way to fill the gap between consumption and production. Sharing raises intergenerational transfers while saving means that resources available at one moment in time become available later (Mason & Lee, 2011b, pp. 7-8).

The NTA opened a new chapter in the System of National Accounts (hereinafter: SNA) by introducing the age dimension into the SNA. The NTA provide an accounting of economic flows from/to age-specific residents of a country (United Nations, 2013, p. 26). An important contribution of the NTA methodology is that it provides comprehensive results about private transfers across age, which was not possible before. Furthermore, they can divide private transfers into inter- and intra-household transfers. This is possible because the NTA age profiles are based on individual, rather than on household data (Lee, Lee, & Mason, 2008, p. 210).

The NTA are governed by the flow identity, first presented in 1994 by R. Lee (1994a):

$$\underbrace{C(x) - Y^{l}(x)}_{Lifecycle\ deficit} = \underbrace{\tau^{+}(x) - \tau^{-}(x)}_{Net\ transfers} + \underbrace{Y^{A}(x) - S(x)}_{Asset-based\ reallocations} \quad (2)$$

The economic lifecycle is presented by consumption $C(x)$ and labour income $Y^{l}(x)$, at each age x. The lifecycle deficit represents the excess of consumption over the labour income $[C(x) - Y^{l}(x)]$. On the other hand, when labour income exceeds consumption we have lifecycle surplus. The lifecycle deficit must equal the age reallocations which are of two economic forms: net transfers and asset-based reallocations. The net transfers represent the difference between transfer inflows and transfer outflows of a specific age group, $[\tau^{+}(x) - \tau^{-}(x)]$. Asset-based reallocations are the difference between asset income and saving of a specific age group, $[Y^{A}(x) - S(x)]$. The equation must hold for aggregate and *per capita* values (Mason & Lee, 2011a, pp. 56-57).

The upper accounting identity follows the simple principle that inflows (labour income, transfer inflows and asset income) must equal outflows (consumption, transfer outflows and saving) (Mason & Lee, 2011a, p. 57).

Flows are then further disaggregated by sector, the private sector and the public sector. Public transfers are of two types: the inflows to each age group (e.g. publicly funded health, education, pensions) and the outflows from each age group (e.g. taxes paid). Private transfers include flows between households (inter-household transfers) and within households (intra-household transfers). Asset-based reallocations are also disaggregated by private and public sector. Private asset income includes return on capital, dividends, interest, rent, and the imputed return on owner-occupied housing. On the other hand, public asset income includes return on publicly owned capital and interest paid on public debt (a negative value). Public and private saving

generates an outflow, whereas dissaving (or increasing debt) generates an inflow (Mason & Lee, 2011a, pp. 57-58).

We can decompose Equation (2) and write it down in a more detailed form:

$$C^f(x) + C^g(x) - Y^l(x) = \tau^{inter}(x) + \tau^{intra}(x) + \tau^g(x) + Y^{Af}(x) + Y^{Ag}(x) - \\ - S^f(x) - S^g(x) \quad (3)$$

where C^f denotes total private consumption, C^g total public consumption, Y^l labour income, τ^{inter} net inter-household transfers, τ^{intra} net intra-household transfers, τ^g net government transfers, Y^{Af} private asset income, Y^{Ag} public asset income, S^f private saving, and S^g public saving, all at a specific age x.

An important feature of the NTA is that they use individual data, rather than household data. Using household data would present an incomplete description of the generational flows in the economy. For example, transfers within the family can be, and indeed are, crucial for the well-being of family members, especially children. As a matter of fact, for children, intra-household transfers can present the most important component of total intergenerational transfers. However, in assigning all economic flows to individuals, the household head has an important role. By assumption, she holds all the assets in the household. Consequently, all inter-household transfers flows originating from the positive (negative) difference between the total consumption and the total available income come (flow) from (to) the household head who provides (invests) the missing (excess of) resources through assets, i.e. asset-based reallocations (United Nations, 2013, pp. 27-28).

To analyse the economic flows we first need to create an extensive set of age profiles. Age profiles are calculated as age-specific averages for many different variables – categories compounding the labour income and the consumption, components of public and private transfers and finally public and private asset-based reallocations. To create age profiles we first need to derive aggregate values for different variables, using the data from the SNA and other related sources. In the next step, relative distribution over age groups is estimated using survey and/or administrative data. These age profiles then need to be adjusted by adequate adjustment factors, so that the sum of age-specific averages for different age groups multiplied by the population by age match the aggregate values. Because observations in the survey data are randomly selected, the parameters calculated from the sample data usually do not match the population parameter. For most age profiles calculated from the survey data we want to apply smoothing procedure to eliminate the random factor.

3 AGGREGATE VALUS: METHODOLOGY, DATA AND RESULTS

The NTA definitions and concepts are broadly consistent with those of the SNA (United Nations, 2013, p. 29). The SNA is an internationally agreed on and standardized set of recommendations

on how to measure economic activity (System of National Accounts 2008, 2009). Therefore, this worldwide established accounting system implies data availability and international comparability (United Nations, 2013, p. 27).

Even though the NTA and the SNA definitions are broadly consistent, there exists a certain distinction between them. Firstly, in the NTA, economic flows belong to a particular age group or the rest of the world (hereinafter: ROW) and are reported from an individual's (belonging to a specific age group) perspective. Secondly, the NTA threats all private sectors in a consolidated fashion. Asset income of different age groups comprises all asset income, also the operating surplus of corporations, regardless of whether it is distributed as dividends or not. Private saving includes household and corporate savings. Thirdly, the NTA separates mixed income into return on labour and return on asset. In the SNA, the mixed income combines labour and asset income. The mixed income from the SNA is therefore divided into labour income and asset income in the NTA. Fourthly, the NTA flows are measured using basic prices, meaning that income and consumption are measured before indirect taxes on production and products (Mason & Lee, 2011a, p. 60).

We should expose two important limitations of both, the SNA and the NTA. Firstly, the treatment of environmental resources (green accounting) is excluded from the accounts. And secondly, the non-market time is excluded from valuation. The value of unpaid services provided within the household, especially by women, is excluded from the measure of production, consumption and transfers. The production of such individuals is therefore undervalued; on the other hand, the consumption of children and the elderly is also undervalued, since they are primary consumers of this non-valued production. Therefore, transfers to children and old people are understated (Mason & Lee, 2011a, p. 60).

The NTA also relies on the SNA breakdown of sectors and it is able to distinguish between three different kinds of sectors: private sector, public sector and the rest of the world. Public components of the NTA are equivalent to the general government components of a certain variable in the SNA. On the other hand, the private component of a certain variable combines flows from/to corporate, household and non-profit institutions serving households (hereinafter: NPISH) sectors and the ROW from the SNA (Mason & Lee, 2011a, pp. 59-60). All institutions are seen as intermediaries between individuals (United Nations, 2013, p. 27).

3.1 Labour Income and Consumption

The economic lifecycle consists of consumption, labour income and lifecycle deficit as a difference between consumption and labour income. According to the NTA, consumption includes both, public and private consumption (Mason & Lee, 2011b, p. 8). The aggregate counterpart in the SNA (reported in the use of disposable income accounts) is final consumption expenditure, measured using basic prices, meaning before the assessment of value-added or other consumption taxes. Separately, we estimate values for public and private education, health

consumption and consumption other than education and health (Mason & Lee, 2011a, pp. 61-62).

Private consumption aggregate controls include financial and non-financial corporations, households, and NPISHs. Public consumption includes consumption of general government from the SNA (United Nations, 2013, p. 77). The aggregate controls for private consumption expenditures are derived using data where disaggregation is measured using the Classification of Individual Consumption by Purpose (hereinafter: COICOP). On the other hand, government expenditures are divided using the Classification of the Functions of Government (hereinafter: COFOG).

Primary income is, according to the NTA, the sum of labour income and asset income over all ages and it is consistent with the SNA net national income. In the SNA, net national income includes the compensation of employees, mixed income, net operating surplus, net property income and other taxes on production (United Nations, 2013, p. 75).

In the SNA and therefore also in the NTA, the compensation of employees includes two main components: wages and/or salaries, and employer's social contributions. Mixed income contains income acquired by unincorporated enterprises. It consists of remuneration for work by the members of the household and it is not separated from return to the owner as an entrepreneur. Net operating surplus is the income of incorporated enterprises after they pay the costs of labour input, consumption of fixed capital and after taxes on production less subsidies. Net property income from the ROW is a balancing item capturing the flows of property income between national units and the ROW. Other taxes on production are taxes acquired during the production process (System of National Accounts 2008, 2009, pp. 132-333).

In the NTA, income on foreign investment or from foreign temporary work of residents is included in the primary income of residents. On the other hand, income on asset owned by non-residents and the labour income of temporary work by non-residents is excluded (Mason & Lee, 2011a, p. 59).

Labour income in the NTA provides a comprehensive measure for production (Lee & Ogawa, 2011, p. 110). Labour income includes earnings of employees working in the formal sector, returns on labour of the self-employed workers and employer's social contributions (Mason & Lee, 2011b, p. 8).

Aggregate values for labour income are taken from Annual non-financial sector accounts. As already mentioned, the data from the SNA do not provide information on self-employment income. They only provide information on mixed income from household enterprises that includes both, return on labour and return on capital (Lee & Ogawa, 2011, p. 114). Therefore, there exists a need to allocate a proper share of mixed income to capital and labour. The average labour share of mixed income varies from 0.654 and 0.686 as a result of different methods implemented in different countries (Gollin, 2002, p. 471). According to the NTA, we use a

simple method of allocating one third of mixed income to the capital and two thirds to the labour (Lee & Ogawa, 2011, p. 114).

The lifecycle deficit represents the excess of consumption over labour income. If the lifecycle deficit is a negative value, it is called lifecycle surplus. The lifecycle deficit measures demand for age reallocations. To fill the gap between consumption and labour income, four different inter-age flows can be applied: public and private transfers and public or private asset-based reallocations. An accounting identity holds when net transfers plus asset-based reallocations equal the lifecycle deficit. This means that working-age population must generate sufficient resources to fulfil their own consumption needs, to fund public and private transfers to children and the elderly and to save for their future retirement needs (Mason & Lee, 2011b, pp. 11-13).

The NTA aggregate values for consumption, labour income and lifecycle deficit, from the years 2000, 2003, 2005, 2008 and 2010, are listed in the Table 1. All the values are expressed in euros (hereinafter: EUR), even though Slovenia introduced the euro currency only in January 1, 2007. The main reason for using EUR currency, for all the years, is the necessity to make the results comparable. For calculating main aggregate values we use data from Eurostat webpage.

In Table 1, we can see that the total lifecycle deficit varies quite a lot over time, from the lowest value in 2008, where it represents 0.87% of gross domestic product (hereinafter: GDP) to the highest in 2010, representing 5.74% of GDP. Total consumption, as the sum of public and private consumption, varies from 58.47% of GDP in 2008 to 65.18% and 67.54% of GDP in the years 2010 and 2003. In all the years, private consumption is more than twice that of public consumption; the lowest being 40.33% of GDP in 2008 and the highest 44.48% and 46.9% of GDP in 2000 and 2003. Public consumption is the lowest in 2008, representing 18.1% of GDP and the highest in 2003 and 2010, reaching 20.60% and 20.77% of GDP respectively. No specific trend can be seen in different subcategories of private and public consumption on education, health, and consumption other than education and health with the exception of private consumption on education, which constantly increases from 0.38% of GDP in 2000 and 0.52% of GDP in 2010. While consumption on education and health represents only a small part of total private expenditures - it represents only 4.82% of total private consumption in 2010 - public consumption on education and health together represents more than half of total public consumption: 53.44% in 2010.

Labour income as a percentage of GDP is the lowest in 2008, representing 57.61% of GDP, and the highest in 2003, reaching 63.44% of GDP. The percentage of self-employment labour income in GDP is falling over the years; from 7.26% and 7.31% of GDP in 2000 and 2003 to 6.91%, 6.78%, and 6.25% of GDP in the following years.

Table 1. Aggregate values for lifecycle deficit and its components, Slovenia, 2000-2010

Year	2000		2003		2005		2008		2010	
	Mill. EUR	% of GDP	Mill. EUR	% of GDP	Mill. EUR	% of GDP	Mill. EUR	% of GDP	Mill. EUR	% of GDP
Lifecycle deficit	**636**	**3.42**	**951**	**4.10**	**608**	**2.12**	**323**	**0.87**	**2,037**	**5.74**
Consumption	**11,729**	**63.18**	**15,665**	**67.54**	**17,495**	**60.91**	**21,778**	**58.47**	**23,132**	**65.19**
Public consumption	3,471	18.70	4,779	20.60	5,453	18.99	6,758	18.15	7,369	20.77
Public consumption, education	864	4.65	1,231	5.31	1,387	4.83	1,666	4.47	1,779	5.01
Public consumption, health	1,036	5.58	1,401	6.04	1,589	5.53	1,977	5.31	2,159	6.08
Public consumption, other	1,571	8.46	2,146	9.25	2,476	8.62	3,116	8.37	3,431	9.67
Private consumption	8,258	44.48	10,886	46.93	12,042	41.93	15,020	40.33	15,763	44.42
Private consumption, education	71	0.38	100	0.43	133	0.46	180	0.48	185	0.52
Private consumption, health	263	1.42	370	1.60	416	1.45	518	1.39	574	1.62
Private consumption, other	6,960	37.49	9,209	39.70	10,162	35.38	12,780	34.31	13,338	37.59
Labour income	**11,093**	**59.75**	**14,714**	**63.44**	**16,887**	**58.79**	**21,455**	**57.61**	**21,095**	**59.45**
Earnings	9,745	52.49	13,018	56.12	14,901	51.88	18,929	50.82	18,878	53.20
Self-employment labour income	1,349	7.26	1,696	7.31	1,986	6.91	2,527	6.78	2,217	6.25

Source: *Eurostat, Final consumption expenditure of households by consumption purpose*, 2014; Eurostat, *General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure - Tables by benefits, by function, 2014.*

3.2 Transfers

Net transfers represent the difference between transfer inflows and transfer outflows. If the difference is positive, there exists a transfer surplus and *vice versa* for transfer deficit. In the NTA, the aggregate value of net transfers across all ages equates to net ROW transfers in the SNA (Mason & Lee, 2011a, p. 59). Public transfer inflows equal in-kind and in-cash transfers received by beneficiaries of public programs. In most of the economic literature, public transfers include only cash transfers. The NTA includes both kinds of transfers, in-kind and in-cash (Miller, 2011, p. 170).

In-kind public transfer inflows are goods and services received directly from public government agencies and, by assumption, they equal public consumption. On the other hand, public cash transfer inflows are transfers received by the government in the form of money. Public transfer outflows measure economic resources used to finance public transfer inflows, including taxes, social contributions and other revenues to the government. Public transfers are according to the NTA identified by purpose. There is a need for calculating public transfers of education, health and pensions, maybe also unemployment, and sickness and disability if there exists a strong age pattern (Mason & Lee, 2011a, pp. 65-66). The disaggregation of public transfers by purpose is important, because social programs such as education, health, and pensions clearly have specific

age targets (Miller, 2011, p. 161). Public transfer inflows to residents less public transfer outflows from residents must equal net public transfers from/to the ROW (Mason & Lee, 2011a, p. 65). For aggregate controls of public transfer inflows by categories, we use data from the European System of Integrated Social Protection Statistics (hereinafter: ESSPROS); for public transfer outflows we use data from Annual non-financial sector accounts.

As we already mentioned, private transfers include inter-household transfers and intra-household transfers. Private transfers refer to *inter vivos* transfers, excluding the measurement of bequest and other capital transfers (Lee & Donehower, 2011, p. 185). Inter-household transfers include direct transfers between households and indirect transfers which are mediated by NPISHs. Inter-household transfer inflows include private transfers received by residents regardless of how they are received, from domestic economy or from the ROW. Inter-household transfer outflows include private transfers irrespective of the destination to which they flow. The difference between inter-household transfer inflows and outflows are net private transfers from/to the ROW. In the NTA, only current transfers are reported, capital transfers such as bequests are subject to on-going NTA research (Mason & Lee, 2011a, p. 71).

We capture aggregate value for the net inter-household transfers from the Annual non-financial sector accounts and it consists of flows between households (e.g. gifts) and of flows with a firm or NPISH as an intermediary institution (e.g. company pensions or donations). They include the SNA's categories such as other current transfers, social contributions and benefits not in kind, and social transfers in-kind, which correspond to the expenditures of NPISHs. Net inter-household transfers equal net inter-household transfers from the ROW. We can estimate the aggregate control of intra-household transfer only by using survey data, because unfortunately flows within private institutional units are not captured in the SNA.

3.3 Asset-based Reallocations

Assets are of special interest to economics, because they present a way to shift economic resources across age. If transfers on one hand are mainly used to shift resources to younger and older generations, assets are more frequently used to shift resources to the elderly (Mason, Ogawa, Chawla, & Matsukura, 2011, p. 209). Observing asset-based reallocations combined with transfers provides a full foundation for large lifecycle deficits of young and old people.

Asset-based reallocations are divided into public and private asset-based reallocations. Asset-based reallocations equal asset income less saving. The NTA asset income consists of capital income and property income. Generating additional asset income represents an inflow, while saving represent an outflow. Spending savings or dissaving can generate an inflow for individuals (Mason & Lee, 2011b, p. 11).

Public asset-based reallocations must equal to public transfer deficit or surplus. Public transfer deficit is generated when taxes and grants received by residents are not enough to cover public transfer inflows, where transfer inflows present the sum of public transfer inflows to the

residents and net public transfers to the ROW. If taxes and grants are more than enough to cover public transfer inflows, surplus is generated. Government therefore covers the public transfer deficit or surplus through asset-based reallocations. If asset income is sufficient to cover transfer deficit, the residual can be saved. On the other hand, if asset income is insufficient to cover the deficit, the public sector must dissave (Mason & Lee, 2011a, p. 65-66).

According to the SNA, public asset income is the sum of the net operating surplus and property income of the government. Because public capital does not generate an operating surplus, the net operating surplus is usually very small. Public property income consists of interest, reinvested earnings on direct foreign investment and rents. Public saving is the net saving by the general government from the SNA (Mason & Lee, 2011a, p. 70).

Private asset-based reallocations also consist of two flows, asset income and saving. The asset income is further divided into capital and property income. Private capital income consists of return on capital owned by corporations and households, operating surplus of corporations and households, and capital share of mixed income. Property income consists of flows generated by financial assets, such as interest, dividend, and rent. Regardless of the form of property income, inflows and outflows must always be balanced. Private saving in the NTA summed over all ages equals the difference between disposable income and consumption from the SNA (Mason & Lee, 2011a, pp. 59-74).

The NTA aggregate values for reallocations, transfers and asset-based reallocations from the years 2000, 2003, 2005, 2008 and 2010 are listed in Table 2. Reallocations as the sum of transfers and asset-based reallocations must equal the lifecycle deficit – as already presented, the LCD is lowest in 2008 (0.87% of GDP) and highest in 2010 (5.73% of GDP). In the years 2000, 2003, and 2010 net transfers are positive, whereas in 2005 and 2008 they are negative. Thus, in 2005 and 2008 transfer inflows are smaller than transfer outflows; the difference represents positive net transfers to the ROW. Net transfers are smallest in 2008, representing -0.83% of GDP, and highest in 2003, when net transfers from the ROW amount to 0.18% of GDP. Net public transfers are negative in all the years, meaning that public transfer outflows always exceed inflows. The value of net public transfers is smallest in 2008, representing -0.93% of GDP and highest in 2003, representing -0.37% of GDP. Public transfer inflows are highest in 2003 and 2010, representing 38.74% and 38.57% of GDP respectively and lowest in 2008, representing 33.53% of GDP. The difference between government spending in 2008 and 2010 can be due to the global financial and economic crisis. In 2010, stimulus plans increased government spending (Miller, 2011, p. 163).

Table 2 shows that in-kind public transfers in all the years exceed in-cash public transfers. In 2010 in-kind transfers represent 53.84% of total public transfer inflows, while cash transfers represent the remaining 46.16%. Public transfer outflows and inflows peak in 2003 and 2010 and they are the lowest in 2008. While net public transfers are negative in all five analysed years, net private transfers are positive; meaning that in Slovenia people receive net private transfers from

the ROW. The lowest value is 0.10% of GDP in 2010, otherwise, the value never exceeds 1% of GDP.

Public asset-based reallocations (hereinafter: RAG) are positive in 2010, and negative otherwise. While in the year 2008 the RAG represent -1.98% of GDP, in 2010 they represent 2.21% of GDP, probably as a consequence of increased government debt. Until the end of 2008, the general government debt amounts to 8,180.1 million EUR, while until the end of 2010, it reaches 13,703.9 million EUR (General government debt, Slovenia, 1994-2010, 2011). If RAG is positive, the inflow from new government debt is higher than the interest paid on public debt. Private asset-based reallocations are positive in all the years, meaning that private asset income always exceeds private saving. They are highest in 2003, representing 5.02% of GDP and lowest in 2005 and 2010, representing 3.41% and 3.48% of GDP respectively.

Table 2. Aggregate values for reallocations and its components, Slovenia, 2000-2010

Year	**2000**		**2003**		**2005**		**2008**		**2010**	
	Mill. EUR	**% of GDP**	**Mill. EUR**	**% of GDP**	**Mill. EUR**	**% of GDP**	**Mill. EUR**	**% of GDP**	**Mill. EUR**	**% of GDP**
Reallocations	**636**	**3.43**	**951**	**4.10**	**608**	**2.12**	**323**	**0.87**	**2,037**	**5.74**
Transfers	**34**	**0.18**	**34**	**0.15**	**-61**	**-0.21**	**-307**	**-0.82**	**18**	**0.05**
Net public transfers	-80	-0.43	-85	-0.37	-242	-0.84	-346	-0.93	-188	-0.53
Public transfer inflows	6,586	35.47	8,985	38.74	10,182	35.45	12,487	33.53	13,687	38.57
Public transfer inflows, in-cash	3,115	16.78	4,206	18.13	4,730	16.47	5,729	15.38	6,318	17.80
Public transfer inflows, in-kind	3471	18.70	4,779	20.60	5,453	18.99	6,758	18.15	7,369	20.77
Public transfer outflows	6,666	35.90	9,070	39.10	10,424	36.29	12,833	34.46	13,875	39.10
Net private transfers	114	0.61	119	0.51	181	0.63	39	0.10	206	0.58
Asset-based reallocations	**602**	**3.24**	**917**	**3.95**	**669**	**2.33**	**630**	**1.69**	**2,019**	**5.69**
Public asset-based reallocations	-81	-0.44	-247	-1.06	-310	-1.08	-736	-1.98	784	2.21
Public asset income	-205	-1.10	-155	-0.67	-62	-0.22	-12	-0.03	-269	-0.76
Public saving	-124	-0.67	92	0.40	248	0.86	724	1.94	-1,053	-2.97
Private asset-based reallocations	683	3.68	1,164	5.02	979	3.41	1,366	3.67	1,235	3.48
Private asset income	2,123	11.44	3,366	14.51	3,642	12.68	4,693	12.60	3,076	8.67
Private saving	1,440	7.76	2,202	9.49	2,663	9.27	3,327	8.93	2,471	6.96

Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure - Tables by benefits, by function, 2014.*

4 AGE PROFILES: METHODOLOGY, DATA AND RESULTS

Aggregate economic flows presented in the SNA are systematic and comprehensive, but they do not include the age dimension. The NTA methodology is therefore used to break down the data by age. Data broken down by age enables us to measure age-specific disposable income and its age-specific use.

Countries usually provide different surveys containing the data needed for creating the NTA variables. If we used survey data directly, this could seriously under- or over-estimate the aggregate value. This is especially characteristic of small sample survey or of the variables with small number of observations. In such cases, the impact of the outliers becomes really large. There also exists a systematic under- or over-reporting of specific variables (e.g. labour income of respondents is usually over-reported; people over-estimate the value of their real estate, because they are emotionally attached to their home). Therefore, we rather construct a relative age profile from the survey data and adjust the relative value to match the aggregate value. To assure that the sum of the products of age profiles and the number of inhabitants of a specific age match the aggregate value, we need to multiply the sum by an appropriate adjustment factor (Sambt, 2009, p. 49).

Before presenting age profiles we would like to expose two additional methodologies, which are used to correct the problem of using survey data: smoothing and adjusting. Most of the age profiles are results of survey data. Therefore, they deal with noise from sample variation and other sources of random variation. The **smoothing** procedure helps to minimize this noise. With the smoothing procedure we should only eliminate the sample variation and not the real variation in the data (United Nations, 2013, pp. 62-63). According to the NTA, age profiles are selectively smoothed to reduce the difference between the population and sample parameter, following a random selection of survey samples (Mason & Lee, 2011a, p. 63). Each age profile should therefore be smoothed separately in order to only get rid of the sample variation and not the real variation in the data.

To reduce random effect we can use Karnel-weighted local polynomial regression, which represents a non-parametric technique that helps us discover the relationship between the variable of interest y and the independent variable x. Assume that x has I distinct values, meaning that they can be categorized into I bins. Let x_{i} represent i-th different value or i-th different bin of the variable x. The finite mean of the variable y at x_{i} can be denoted as $\bar{y}_{\mathrm{Ui}}$. Using survey weights and survey measurements on y, we can estimate the value $\hat{\bar{y}}_{\mathrm{i}}$ of $\bar{y}_{\mathrm{Ui}}$. For large surveys the plot of $\hat{\bar{y}}_{\mathrm{i}}$ becomes more informative and also less cluttered than the plot of row data (Chambers & Skinner, 2003, p. 146). In this master's thesis, age profiles are smoothed using a smoothing factor with values between 2 and 4.

In the next step, we need to **adjust** every age profile, smoothed or unsmoothed, to match the aggregate value, also called macro-control. We need to find a scaling factor, which adjusts the

age pattern upward or downward by the same factor for each age. The scaling factor is the macro-control divided by unadjusted aggregate value of the flow for a specific year:

$$\theta = \frac{X}{\sum_{a=0}^{w} x(a)N(a)} \tag{4}$$

where θ represents the scaling factor, X denotes macro control, $x(a)$ is *per capita* age pattern at age a and $N(a)$ is population count at age a (United Nations, 2013, pp. 62-63).

The final *per capita* and aggregate estimates are calculated as age profile multiplied by the scaling factor:

$$\bar{x}(a) = \theta\, x(a) \tag{5}$$

$$\bar{X}(a) = \bar{x}(a)N(a) \tag{6}$$

where $\bar{x}(a)$ represent *per capita* age profile at age a and $\bar{X}(a)$ aggregate age profile at age a (United Nations, 2013, p. 63).

Age profiles run from age 0 to age 90+ (Tung, 2011, p. 137). We have to limit the upper age group to 90+ because the number of respondents in ages above 90 is almost negligible and therefore produces a large random effect. For some categories with a small number of observations even a lower threshold can be applied. In a case where for example age 80 is assumed to be the appropriate limit for some variable, we impose uniform distribution for selected ages between 80 and 90+ (Sambt, 2009, p. 49).

The main micro-level data source is the Household Expenditure Survey (hereinafter: HES) for the years 2000, 2003, 2005, 2008 and 2010. The Statistical Office of the Republic of Slovenia (hereinafter: SORS) combines the data of three consecutive years to enlarge the number of observations and therefore obtain more accurate estimates. Data from three consecutive years are calculated to the middle year. The middle year is the so called reference year, used for interpretations of results. The expenditure is classified by the Classification of Individual Consumption by Purpose – the Household Budget Survey (hereinafter: COICOP–HBS). It includes data on expenditures at household level and income data, mostly at individual level (Statistical Office of the Republic of Slovenia, 2013). Including data on expenditures and income for the same individuals helps us make accurate calculations of intra-household transfers (Sambt & Malačič, 2011, p. 344).

In constructing age profiles we also use other data sources of relevant Slovenian institutions like the Ministry of Finance, The Institute for Pension and Disability Insurance, The Health Insurance Institute of Slovenia and relevant multi-national organisations like the United Nations Educational, Scientific and Cultural Organization (hereinafter: UNESCO).

To make age profiles for different years comparable, we have to use a proper denominator, presented below. But in such a case, we lose information about EUR *per capita* values. Therefore, we present not only the evolution of transfers across different years in time, but also the age profiles in EUR *per capita* terms for the year 2010, representing the year of most recent data available.

4.1 Labour Income

In continuation, we present age profiles of labour income and its components. According to the NTA, labour income includes labour earnings (containing also employer's social contributions or benefits) and self-employment labour income.

4.1.1 Earnings

The methodology for constructing age profiles of earnings is straightforward. Age profile of earnings is calculated as the weighted average of relevant income components, reported in the HES. Their main category taken from the survey data are net wages. Earnings also include all the payments that a worker receives as the result of her labour input, like holiday leave payment, compensation for food and transportation to work or any other payment that is provided from the organisation in which she works. Earnings also include income received from student working offices, income from author's contracts (Sln. *avtorska pogodba*), direct payments (Sln. *neposredno plačilo*), and work by contract (Sln. *pogodba o delu*).

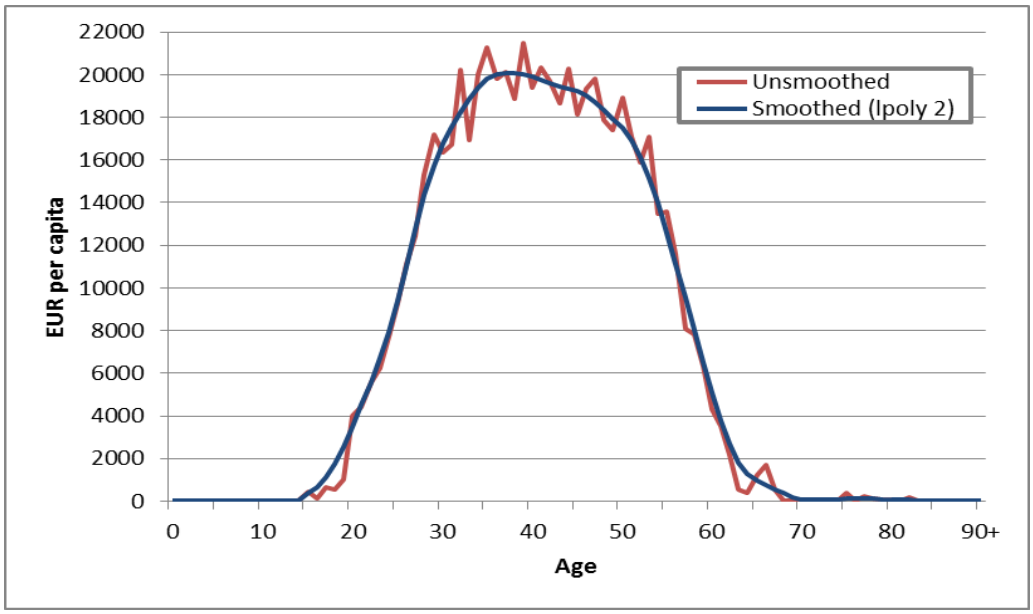
All the components of the earnings are expressed in net values. According to the NTA methodology, it would be more appropriate to have gross earnings, containing also employees' social contributions. Using the age profile of a net income as an approximation for gross income, when income changes significantly with age, can cause serious estimation error. The difference between both values would rise as a consequence of progressive tax rates. In the case of Slovenia, this situation does not present a serious problem, because the average earnings per worker after the age of 30 are relatively flat (Sambt & Malačič, 2011, p. 349). There exists another reason why using net income should not cause serious estimation errors. In Slovenia, social contributions paid by employees represent a constant proportion of the gross wage of the employee.

The NTA earnings also include employer's social contributions (benefits). According to the NTA, benefits or employer's social contributions are assumed to be a constant proportion of gross wages and salaries (United Nations, 2013, p. 103). This is also true for Slovenia.

First, we present the age profiles of earnings from the year 2010, smoothed and unsmoothed ones. The smoothing procedure using high smoothing factors produces fat tails for children and old people. Therefore, we use the low smoothing factor of 2. Having numerous observations in the case of earnings means that high smoothing factors are usually not necessary. In the year 2010, for example, 5,124 individuals reported positive earnings. Even though using a low

smoothing factor, lower polynomial regression still causes small tail in the beginning of a human's life. Because there is no need to assume that someone works before the age of 15, we did not use the smoothing procedure before.

Figure 1. Unsmoothed and smoothed age profile of earnings, Slovenia, 2010



Source: *Eurostat, Non-financial transactions, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

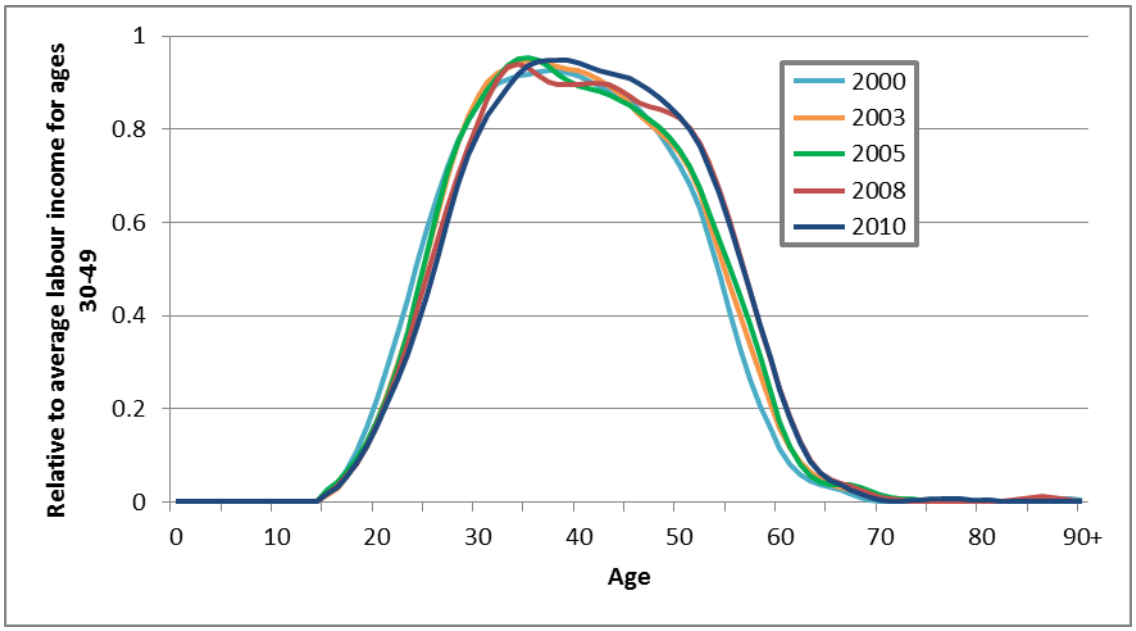
We should be aware that the NTA results are cross-sectional as mentioned before. Therefore, they cannot be directly interpreted as presenting a specific individual. However, we can present them in such a way with one important assumption: that age profiles do not change substantially through time.

From Figure 1 we can see that the age profile of earnings is a typical inverted U-shaped curve, which starts to increase after the age of 15 as a consequence of increasing labour force participation and increasing labour productivity, which is reflected in higher wages of workers. The earnings age profile reaches its peak at the age of 38, when it starts to decline mainly as a consequence of lower labour force participation. As mentioned before, the earnings per earner in Slovenia do not change significantly after the age of 30. Therefore, the decreased labour productivity of older people does not gravely influence the shape of the age profile.

To compare *per capita* age profiles between the years 2000 and 2010, age profiles must be normalized. To make age profiles comparable between the years we use the standard NTA procedure. We standardise values on *per capita* labour income of persons between 30 and 49 years old, meaning that we divide every *per capita* value of a certain variable with a simple mean of *per capita* labour income of persons aged 30-49. In this way, we eliminate the impact of changing economic growth from the different economic categories in the NTA. Labour income is chosen because it represents a central category in the NTA. In this way, normalized age

profiles are not affected by the age distribution of the population. This age group was selected because it is only in a minor way influenced by the decisions of leaving school, entering the labour market or getting retired. However, we should keep in mind that normalized values are influenced by females' decisions on employment and also the differences in the wages between men and women (United Nations, 2013, p. 107).

Figure 2. Evolution of earnings, Slovenia, 2000-2010



Source: *Eurostat, Non-financial transactions, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On ‑demand micro data, 2014.*

Figure 2 shows the evolution of the age profile of earnings between 2000 and 2010. In all the years, the earnings relative to the average labour income of those aged 30-49 start to increase after the age of 15. They rise until reaching its peak in the middle working ages. Then they start to decrease, mainly as a consequence of the lower participation rate of the elderly. Over the years, the distribution of labour income shifts to the right, becoming higher for older workers, meaning that younger people start to work later and older people work longer. The later entrance on the labour market can be explained by a longer duration of education and also by many benefits that Slovenian students receive (Sambt & Malačič, 2011, p. 340).

In the middle working age, the earnings reach a peak. In the years 2000 and 2010 the peak of the earnings happens at the age of 38, in 2003 and 2005 at the age of 35 and in 2008 at the age of 34. After that, earnings start to decrease.

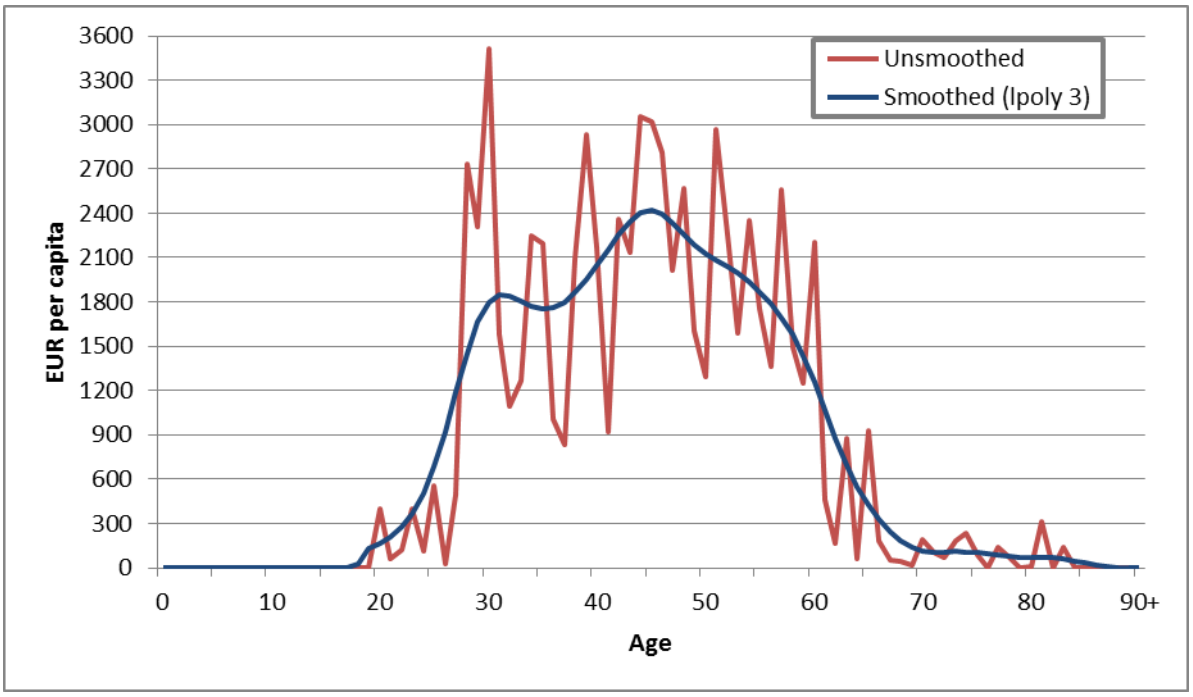
4.1.2 Self-employment Labour Income

The age profile for self-employment labour income is again calculated as weighted average of income of each age group, using HES as the data source. The self-employment labour income

age profile includes reported income from farming, income of entrepreneur (Sln. *dohodek iz dejavnosti*), salary of entrepreneur, reimbursement for annual leave of entrepreneur, and compensation for food and transport to work of entrepreneur.

In the case of self-employment labour income, only 594 individuals reported positive value in 2010. Therefore, we decide to use the smoothing factor 3, to lower the variability in the case of smaller number of observations. Figure 3 presents unsmoothed and smoothed age profiles of self-employment labour income in 2010.

Figure 3. Unsmoothed and smoothed age profile of self-employment labour income, Slovenia, 2010

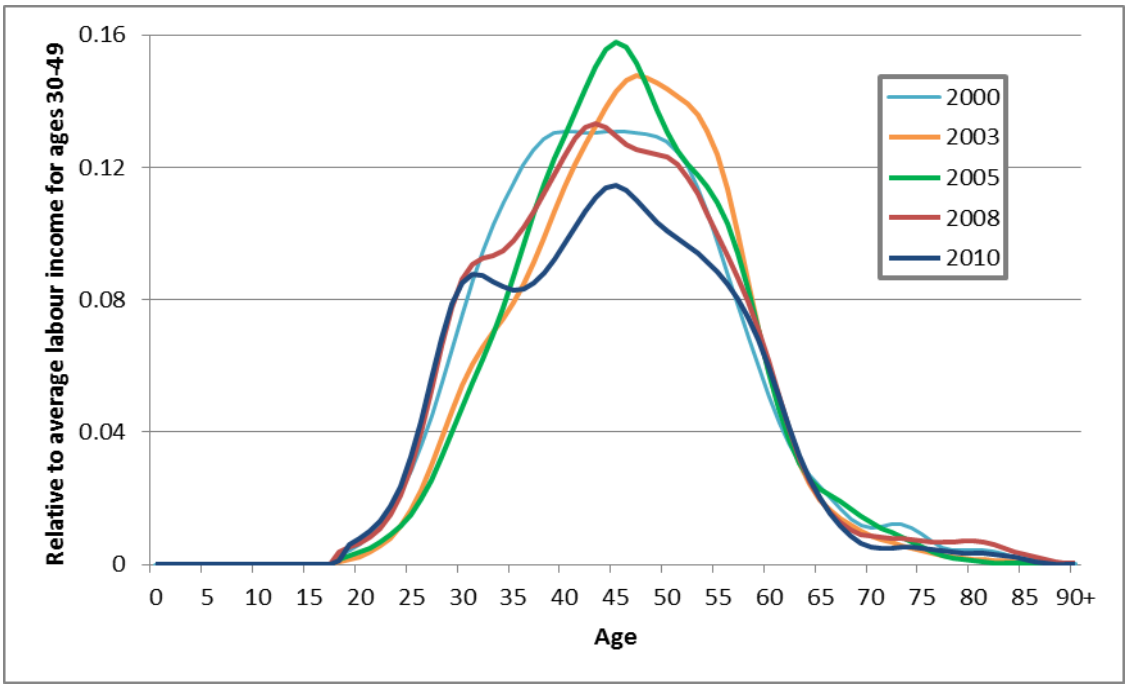


Source: *Eurostat, Non-financial transactions, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

The distribution of self-employment labour income is again an inverted U-shaped curve, starting to increase at the age of 18. The age profile of labour share of mixed income from 2010 has an interesting local maximum at early adult age, probably as a consequence of the smaller employment rate for young adults on the formal labour market during the crisis. The higher unemployment rate of young people forces them to be self-employed (Effects of economic crisis on labour market, 2010). However, part of the increased per capita self-employment income in the late 20s can also result from sample variation. Maybe a higher smoothing factor for those ages would be more appropriate. The global maximum of distribution happens at the age of 45. Thereafter, the income starts to decrease because of the lower participation rate and lower productivity.

In Figure 4, we present the evolution of self-employment labour income during 2000-2010. It shows that the double hump distribution of the labour share of mixed income happens not only in 2010, but also in 2008. In both years, the first hump arises as an aftereffect of the perpendicular increase in the self-employment labour income during the mid-20s, then the income stabilizes before rising again. In all the other years, there exists only one hump, happening at the late working ages. The aggregate values presented earlier show a decreasing value of self-employment labour income as a percentage of GDP through time. The average labour income of those aged 30-49 increases over time. Only in 2010, the average income falls compared to 2008. Increasing income additionally decreases the value of self-employment labour income over time. After a peak, distribution of age profile starts to decrease until the age 90+. Again, health improvement enables old people to work longer. In the years 2008 and 2010, the income for those aged between 80 and 90+ is relatively higher than the income of this age group from previous years.

Figure 4. Evolution of self-employment labour income, Slovenia, 2000-2010



Source: *Eurostat, Non-financial transactions, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

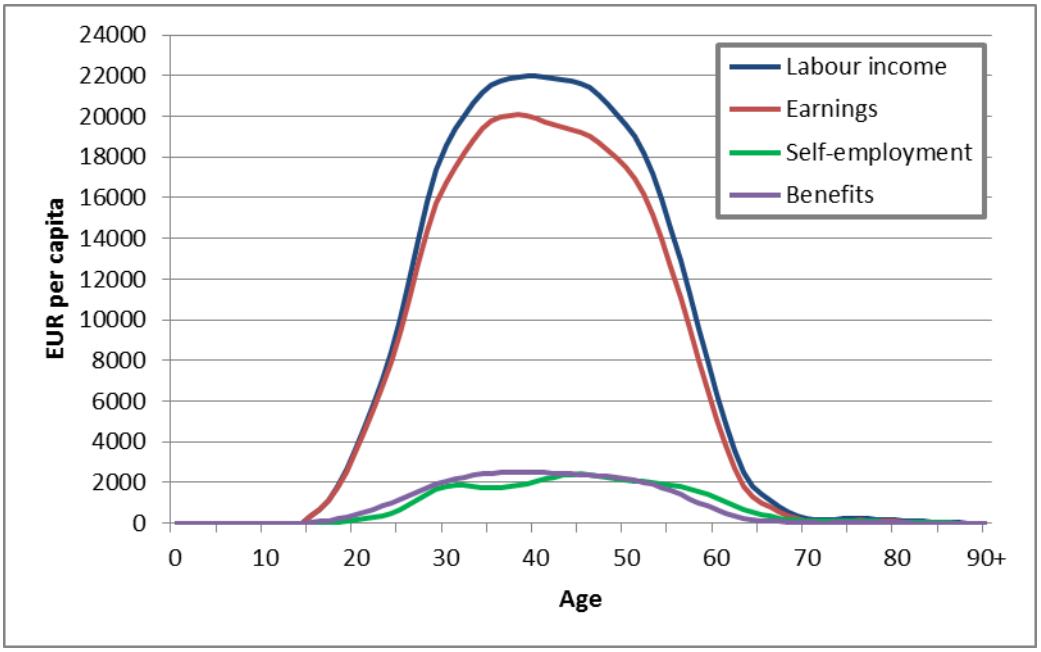
4.1.3 Benefits

As we already mentioned, benefits (i.e. employer's social contributions) compose part of earnings, distributed as a constant proportion of labour income. Even though they present a component of earnings, they are usually showed separately. Therefore, in Figure 5 we present them separately, together with other components of total labour income.

4.1.4 Total Labour Income

The age profile for total labour income represents one of the main NTA age profiles. It represents the sum of earnings (including benefits) and self-employment labour income. Figure 5 presents the smoothed age profile of total labour income and all its subcategories including benefits.

Figure 5. Smoothed age profile of labour income and its subcategories, Slovenia, 2010



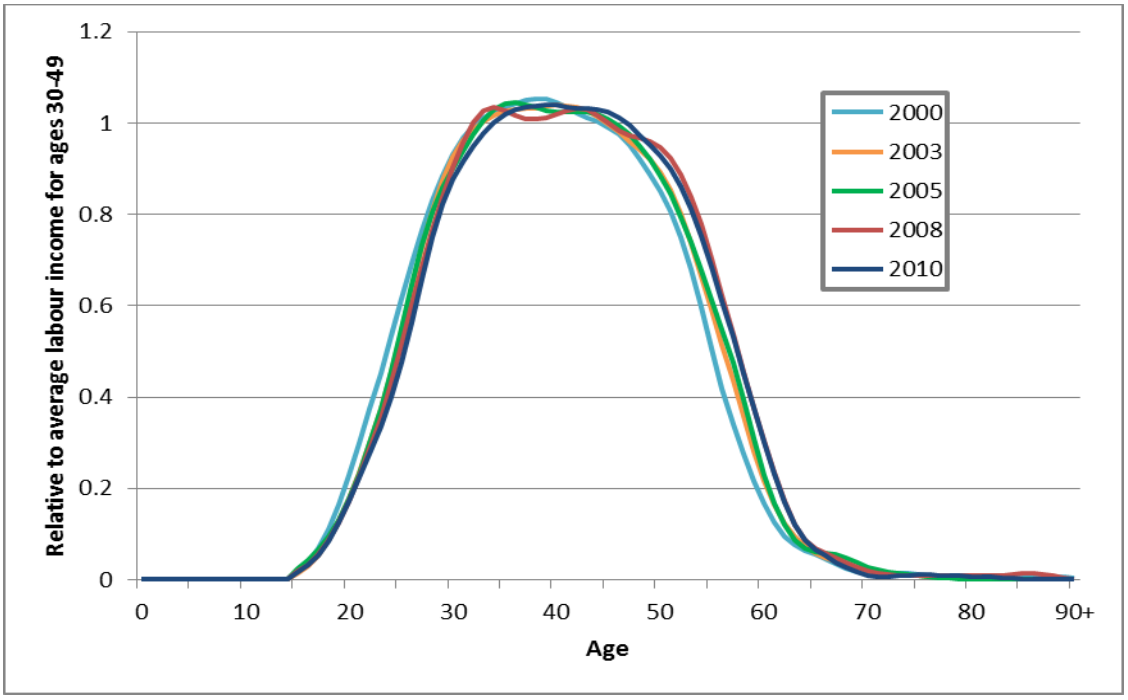
Source: *Eurostat, Non-financial transactions, 2014; Ministry of Finance, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

Figure 5 shows that earnings represent a substantial part of total labour income. As the sum of inverted U-shaped curves, total labour income distribution also becomes an inverted U-shaped curve. The total labour income reaches its peak at the age of 39 and then it starts to decrease. The peak is between the age of 38 for earnings and 45 for self-employment labour income.

The age profile of the labour share of mixed income peaks substantially later than that of earnings, as a consequence of the following reasons. Returns on human capital investments are high for the young and especially for those formally employed. The earnings as the income of the formal sector, therefore peak at younger ages. Younger people are more likely working in the formal sector where human capital investments are rewarded. On the other hand, older people are more likely self-employed, especially as a consequence of mandatory retirement and discrimination in the formal sector. Therefore self-employment usually rises substantially after certain ages and reaches its peak later (Lee & Ogawa, 2011, p. 126).

Figure 6 presents the evolution of total labour income between 2000 and 2010. As earnings represent a substantial part of the total labour income, the evolution of the total follows mainly the pattern of earnings. The distribution of labour income is shifted to the right over time. The difference between age profiles' location is lowered by the decreased importance of self-employment income as a share of total income through time. A higher share of self-employment in other years apart from 2010 moves their distributions to the right.

Figure 6. Evolution of total labour income, Slovenia, 2000-2010



Source: *Eurostat, Non-financial transactions, 2014; Ministry of Finance, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On‑demand micro data, 2014.*

4.2 Private Consumption

Even though NTA methodology prefers to measure consumption, this would be difficult; usually we rather measure expenditures and not consumption. Creating age profiles for private consumption is more difficult than creating age profiles of labour income, because most of the expenditure data is collected on the household level and not on the level of an individual.

The allocation rules should be used to assign a specific value of consumption to each household member. The age profile for each type of consumption represents the average consumption by age between all members of all households. Age profiles for every consumption group are then adjusted to the aggregate values, using the population age distribution (Mason & Lee, 2011a, p. 62).

Private *per capita* consumption allocated by age is estimated using HES, which should include complete household roster, the number of household members and their age, and their spending on education, health and consumption other than education and health (Mason & Lee, 2011a, p. 62). The HES from 2010 includes 3,924 households. In continuation, we present the age profiles of private consumption on education, health and private consumption other than education and health.

4.2.1 Education

The age allocation of private education consumption can be estimated using the regression method. Coefficients of the linear regression show how much education consumption of a household would increase on average, if there were one additional household member of the age a. The regression does not contain a constant term, because if there are no members in the household, the educational consumption should be zero (Sambt, 2009, p. 43).

Using survey data means that there is a high probability of having an outlier in the sample. Outliers can be of two types: representative or non-representative ones. The first group are the sample elements that are reported in the right way; however, the second group includes sample elements with unreasonable different values of specific variables, usually as a consequence of some reported mistake. Such outliers are usually eliminated from the survey. However, having an outlier (a representative one) in the sample usually causes that estimated errors from regression are not normally distributed. To minimize potential bias we need to use a robust regression function (Chambers, 1986, pp. 1063-1065).

Education scales are estimated by regressing education spending (*CFE*) of a specific household *j* on the number of enrolled (*E*) and non-enrolled (*NE*) household members of a specific age a. To ensure the full allocation of household consumption expenditure there is no intercept, as mentioned before.

$$CFE_j = \sum_a \alpha(a) E_j(a) + \sum_a \beta(a)\, NE_j(a) + \varepsilon_j \qquad (7)$$

These education scales are then used to assign survey reported household spending (CFE_j) on education to individual household members *i*. We calculate predicted value for each household member ($\hat{x}_{ij}$) using the following equation:

$$\hat{x}_{ij} = \sum_a \tilde{\alpha}\ (a)\ D_{ij}[a, E] + \sum_a \tilde{\beta}\ (a)\ D_{ij}[a, NE] \qquad (8)$$

where $D_{ij}[a, E]$ is a dummy variable that equals one for an enrolled household member and zero otherwise; and $D_{ij}[a, NE]$ is a dummy variable that equals one for a non-enrolled household member and zero otherwise (United Nations, 2013, p. 98).

In the next step, we need to do further adjustment. We cannot use the estimated regression coefficient directly since it is equal for all the individuals of the same age and enrolment status, independently of the household in which they live.

Following the NTA methodology (United Nations, 2013, p. 98), we need to calculate within household shares or weights as a relative size of individuals predicted value in the total household predicted value ($\sum_i \hat{x}_{ij}$). We can allocate total household expenditure for education to a specific individual according to the weight that individual has in total household expenditure.

$$CFE_{ij} = CFE_j \, (\hat{x}_{ij} / \sum_i \hat{x}_{ij}) \tag{9}$$

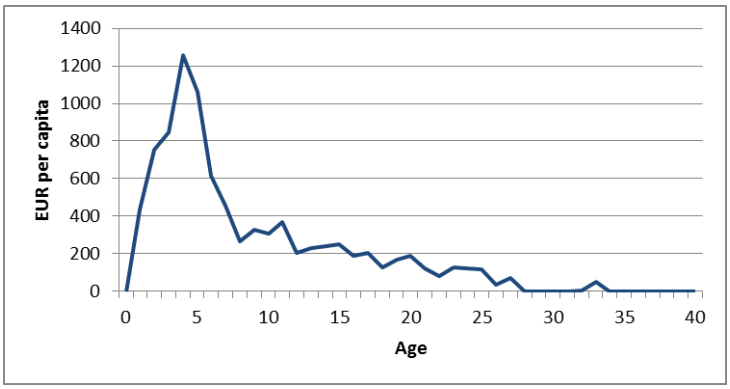
In the last step we calculate age profiles in the standard manner.

If there exists an age group with very low enrolments, the regression coefficient can become negative. To avoid negative expenditure in such cases, we replace the negative coefficients with zeros (United Nations, 2013, p. 98).

In HES, there is no data which would identify who is enrolled in educational processes before the age of 15. Therefore, we assume that all individuals between the ages of 1 and 14 are enrolled in school. The assumption made is a standard procedure of the NTA methodology to avoid omitted variable bias (United Nations, 2013, p. 98).

In 2010, a positive value on consumption expenditures is reported by 951 households. Age profiles of public and private consumption are not smoothed because consumption on education rises and falls quite sharply (Mason & Lee, 2011a, p. 63). Huge discontinuities in the educational consumption age profile are therefore the result of specific ages at which humans enter and leave the school and not the result of some random effect (United Nations, 2013, p. 62). Figure 7 represents the age profile of private education consumption for the year 2010.

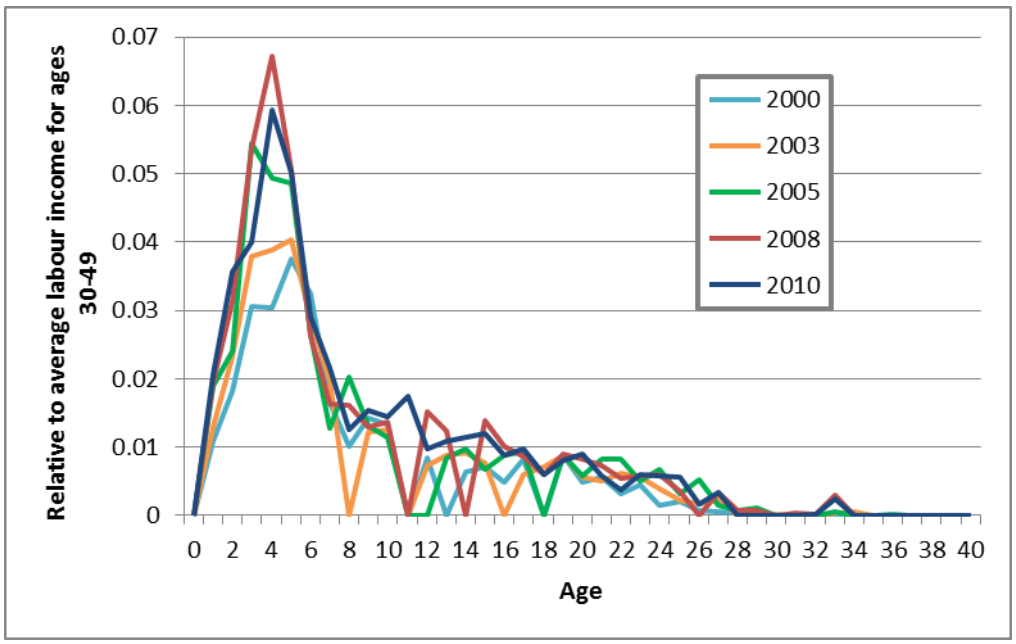
Figure 7. Age profile of private education consumption, Slovenia, 2010



Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

Figure 7 shows that private consumption on education is highest in the early ages, especially in the kindergarten ages. Thereafter, education expenditures fall significantly, indicating that primary, secondary and tertiary education is mainly financed through the public sector. Small *per capita* amounts in those ages are the consequence of expenditures on notes, books and other expenditures of small amounts.

Figure 8. Evolution of private education consumption, Slovenia, 2000-2010



Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

Figure 8 shows the evolution of private education consumption over the years 2000-2010. The pattern of relative *per capita* education consumption mainly stays the same over time. In every examinated year, expenditures are high during kindergarten ages, and later on, expenditures are reduced to very small amounts. Even though the shape of age profiles stays relatively stable, the amount, as a relative share of labour income consumed rises with time, being the smallest in 2000 and the biggest in 2008 and 2010.

4.2.2 Health

To calculate the private health consumption we can again use the regression method, but of a slightly different type. Independent of their age, people consume health products and services. Treating each age from 0 to 90+ separately would mean losing too much degrees of freedom. Therefore, we rather create five-years age groups (Sambt, 2009, p. 43).

We need to estimate the regression coefficient $\beta(a)$ for each age group a, which will tell us the additional average expenditures of household j for an additional household member of age a.

$$CFH_j = \sum_a \beta\,(a) M_j(a) \qquad (10)$$

where $M_j(a)$ represents the number of individuals of the age group a in the household j and CFH_j denotes private health consumption of the household j (United Nations, 2013, p. 100).

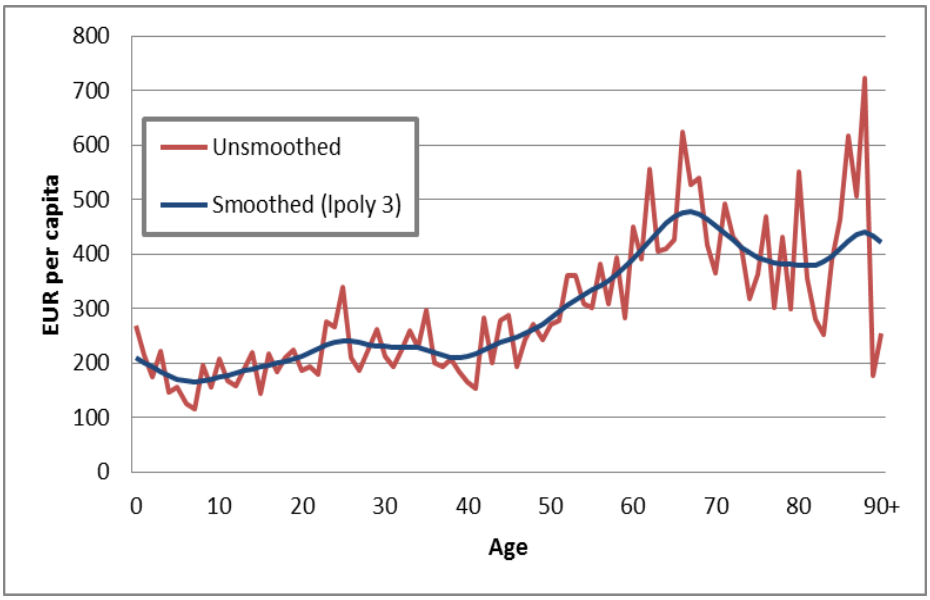
In the next step, we need to allocate the health expenditures of the household j to the specific household member i, using the obtained regression estimates:

$$CFH_{ij}(x) = CFH_j\,\beta(x) / \sum_a \beta(a)\, M_j(a) \qquad (11)$$

where x is the age of the household member i (Sambt, 2009, p. 44).

For calculating age profiles of private health consumption we once again use data on private health expenditures from HES. In 2010, 2,502 households out of 3,924 reported positive value for this consumption category.

Figure 9. Unsmoothed and smoothed age profiles of private health consumption, Slovenia, 2010



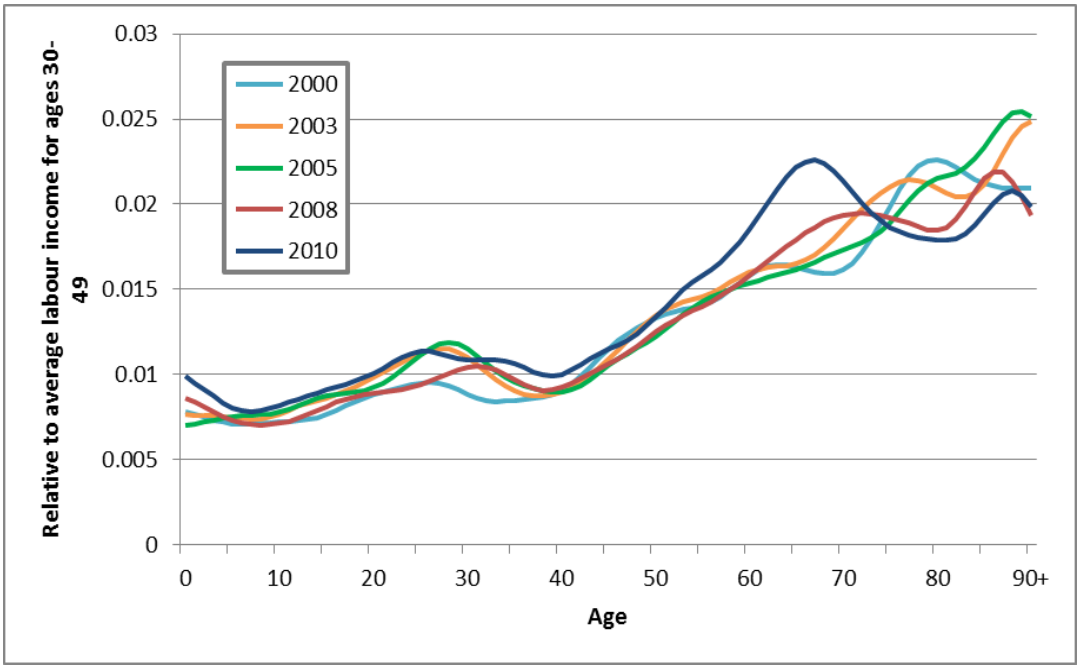
Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

Figure 9 represents unsmoothed and smoothed age profiles of private health consumption in 2010. The pattern shows a local peak at the beginning of life related to higher health demands of new-borns. Thereafter, expenditures start to fall. We will present later that private health expenditures during childhood (especially for the new-borns) are in much larger amounts financed through the public sector. At the end of childhood, expenditures start to rise again and form another local peak during the 20s and early 30s, as a result of increased female needs

during child-bearing. During the 40s, private health expenditures start to increase sharply, until mid-60s, whereas thereafter the health care is primary financed by the public sector.

Figure 10 shows the evolution of private health consumption across time. In all the years except 2005, there exists a hump in the first years of life. After that, consumption starts to fall, it decreases until the end of the first decade of life, and then it starts to rise again and reaches another local maximum at the ages between the 20s and early 30s. After this peak, consumption starts to decrease again until the early 40s. In contrast to the year 2010 presented earlier, the expenditures increase continuously – also after the 60s. However, we should not make too strong conclusions. Robust regression is only asymptotically unbiased, meaning that the unbiasedness is achieved with a sample that is large enough. At high ages the sample usually shrinks, which can produce significant bias at old ages.

Figure 10. Evolution of private health consumption, Slovenia, 2000-2010



Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

4.2.3 Private Consumption other than Education and Health

Other private consumption is allocated using the *ad hoc* allocation rule. This rule is based on an equivalence scale, using the modified Deaton's equivalence scale. The rule assumes that people aged 20 or more have a consumption share of adults. The consumption share of children from the age of 4 and up to the age of 20 increases linearly from 0.4 to 1.0 of the consumption of an adult. For children below the age of 4, it is assumed that they consume 0.4 of the consumption of an adult (Deaton, 1997; Lee et al., 2008). The limit of 20 years old is imposed according to the assumption that until this age, children are dependent on their parents even in the hunter-gatherer

economies (Kaplan, 1994, pp. 760-761). Therefore, this can be true also for the developed countries.

The equation denoting the scale α (a) where a represents specific age is:

$$\alpha(a) = 1 - 0.6 * D\,(4 < a < 20) * ((20 - a) / 16 - 0.6 * D\,(a \leq 4) \qquad (12)$$

where $D(x)$ is a dummy variable that equals one when the specific age condition x is met and zero otherwise (United Nations, 2013, p. 100).

We use the presented equivalence scale to allocate other private expenditure of the household (CFX_j) to the specific individual i living in this household.

$$CFX_{ij} = CFX_j\, \alpha\,(x) / \sum_a \alpha\,(a) M_j(a) \qquad (13)$$

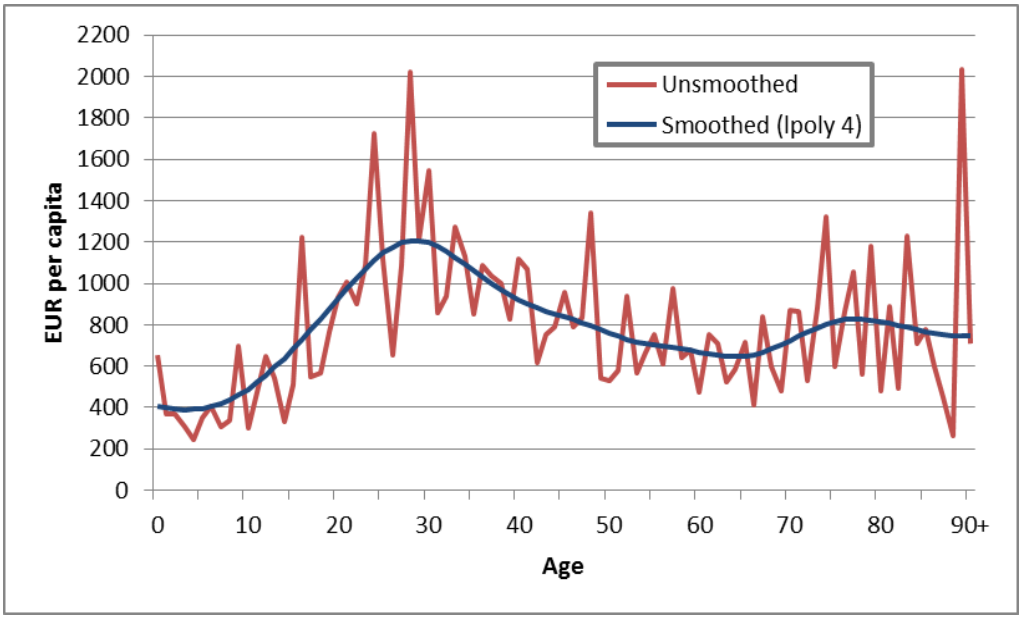
where $M_j(a)$ represents the number of members aged a in the household j (United Nations, 2013, p. 100). Such procedure does not reflect household decisions about allocation of consumption within the household.

Consumption other than education and health is usually divided into two subcategories, housing consumption ("owner-occupied housing") and other consumption (excluding education, health and housing). This division is also of practical use: it is needed for measuring intra-household transfers. The consumption of owner-occupied housing represents imputed rents, which is the amounts of money that individuals are implicitly paying to themselves. Actual rents are excluded from housing consumption and rather included in the category of other private consumption. In Slovenia, housing is predominantly owned and only small portion of it is shared. In 2010, imputed rents amounted 2,258 million EUR and actual rents 153.1 million EUR (General government expenditure by function, 2014). Data on actual and imputed rents are usually retrieved in survey data separately. Unfortunately, in Slovenia this is not the case: in HES only the actual rents are reported. To create the age profile for housing consumption we borrow the age profile of actual rents and we adjust the values to match the aggregate control for imputed rents reported in the SNA.

Figure 11 depicts unsmoothed and smoothed age profiles for housing in 2010. The age profile shows two humps, the first one in the late 20s and the second in the late 70s. Up to the age of 20 housing consumption is consistently rising as a consequence of the applied equivalence scale. The age profile then achieves its first peak, when young people move out from their parents' households and form their own households. Then the age profile decreases because housing consumption is allocated also to the children that people have. During the 70s, housing consumption rises again because partners start to die off – especially male partners who have a lower life expectancy and they are, on average, older than the female partners. Thus the

consumption of same housing is allocated only to remaining household members and therefore consumption *per capita* is higher.

Figure 11. Unsmoothed and smoothed age profiles of private housing consumption, Slovenia, 2010

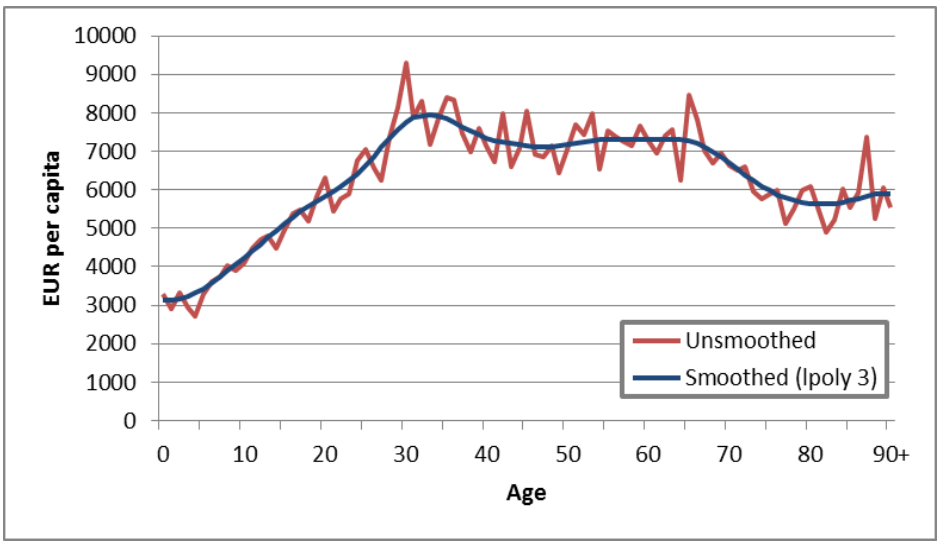


Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

Figure 12 presents the pattern of "other private consumption". It includes all other consumption reported in HES, excluding education, health and housing. Thus, other private consumption includes expenditures on food, clothes, actual rents, transportation and other consumption, including durables. Again the *ad hoc* method was used for the distribution of household consumption between individual household members.

The age profile of other private consumption starts at a low level in the earlier years of life and gradually increases due to the imposed equivalence scale. It increases until the early 30s, when the pattern reaches its peak. In the late 20s and early 30s, young adults start to live on their own. Because most of them are already working, they are able to spend their money on durables like equipment for their apartments, cars and other. During working ages, other consumption is rather stable, starting to decline in the ages when most of the workers get retired – when their consumption needs reduce (for example, they need less fuel and cars to commute to work, they spend less on clothing etc.), but their consumption may also become limited due to lower incomes.

Figure 12. Unsmoothed and smoothed age profiles of other private consumption, Slovenia, 2010



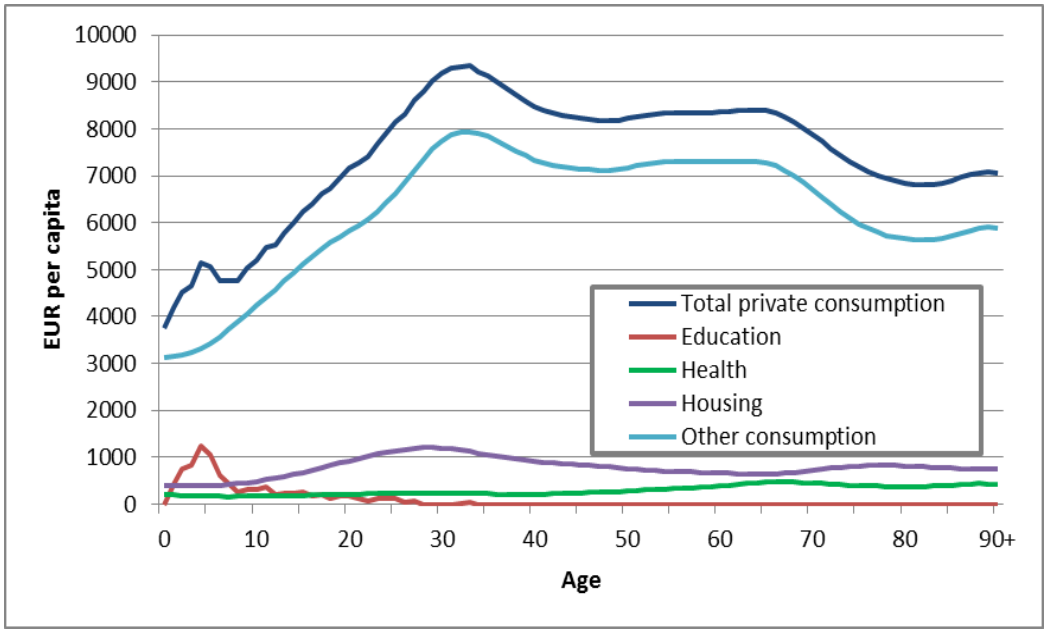
Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On ‑demand micro data, 2014.*

4.2.4 Total Private Consumption

Education and health are analysed separately from other total private and public consumption, because they represent categories that vary substantially according to age (United Nations, 2013, p. 103). On the other hand, other private consumption presents the main part of total private consumption. Therefore, the shape of total private consumption strongly resembles the shape of other private consumption. Smoothed age profiles for total private consumption and its components are shown in Figure 13.

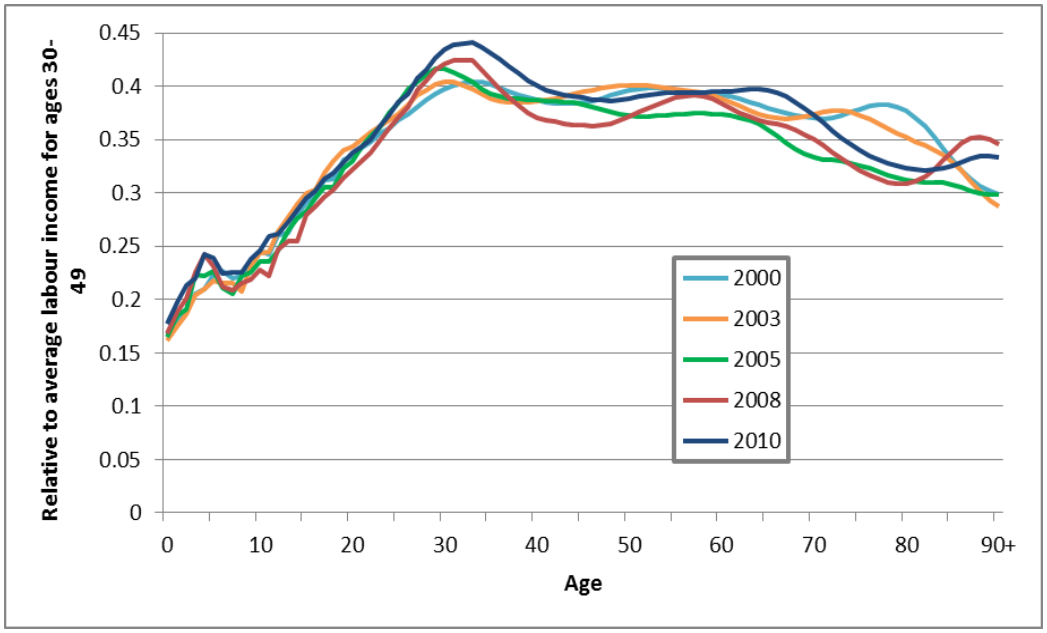
Figure 13 reveals that private education consumption presents only a small part of total private consumption. Even though, in early childhood total consumption has a local peak as a consequence of education consumption in those ages. In Slovenia, health consumption is also primarily financed by the public sector and therefore does not have a large share in total consumption. Both health and housing consumption are relatively stable over time, and therefore do not influence the shape of the age profile of total private consumption gravely.

Figure 13. Smoothed age profiles for total private consumption and its subcategories, Slovenia, 2010



Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

Figure 14. Evolution of total private consumption, Slovenia, 2000-2010



Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

Figure 14 shows the evolution of total private consumption over time. In all the years, the age profile of total consumption is mainly driven by other consumption. In early childhood years, the shape of the private consumption age profile is mainly driven by education consumption. Private consumption rises sharply until the early 30s, when it reaches its peak. In the working ages, consumption is rather stable, and then it starts to decrease. In 2000, 2003 and 2005 it declines after the peak constantly. However, in 2008 and 2010, private expenditures start to rise for the oldest as a consequence of higher health consumption. But again, we should be careful about potential bias of the age profile of health in those years.

4.3 Public Consumption

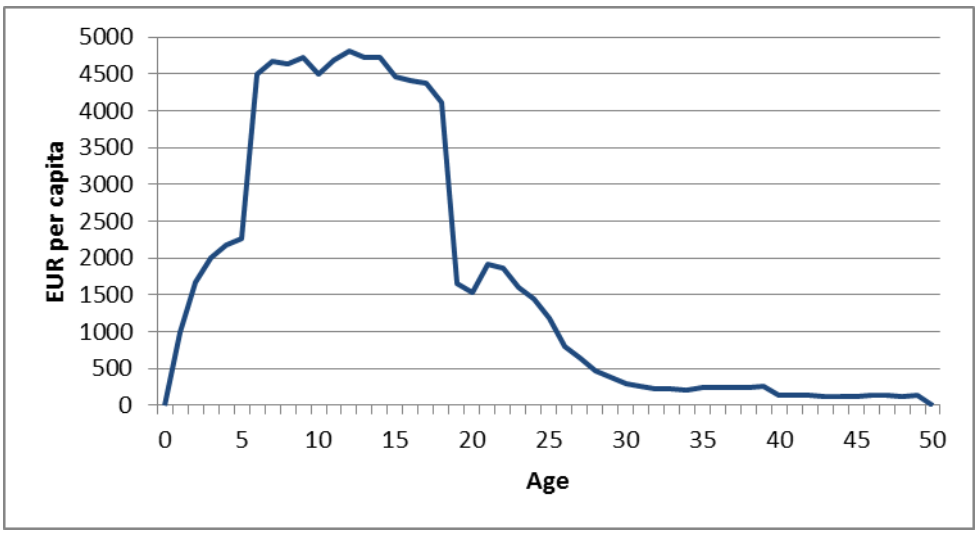
Public consumption is, like private consumption, divided into education, health and consumption other than education and health. Public consumption by assumption equals to public transfers in-kind. We assign transfers from a specific public programme to those individuals that are assumed to be their beneficiaries (Mason & Lee, 2011a, p. 67). We can talk about public individual consumption, when beneficiaries of a certain program are known. The remaining part of total public consumption is collective consumption and it supports people in general.

4.3.1 Education

Survey data do not include information on in-kind public support that beneficiaries receive; therefore, we need to use administrative data. To allocate public expenditures on education we need to split total public education consumption between different levels of education and combine this data with age- and level-specific enrolment data (Mason & Lee, 2011a, p. 62). We divide the level-specific public consumption with the number of pupils/students enrolled in this education level and get unit cost per student at each level of education. According to this assumption, unit costs are equal for all students enrolled in a specific level of education, regardless of their age. Then we calculate the enrolment rates, as the number of students enrolled in each level divided by the total number of people at each age. We multiply the enrolment rate and the unit cost of public education to get *per capita* spending at each age. In the last step, we need to sum up *per capita* values over all the levels of education to get the *per capita* education consumption at each age (United Nations, 2013, pp. 101-102).

We obtain data on the level-specific public consumption on education from the UNESCO database, whereas age- and level-specific enrolment are obtained from Eurostat. In both data sources the levels of education are divided using the International Standard Classification of Education (hereinafter: ISCED). According to this classification, public expenditures are divided between pre-primary, primary, lower and upper secondary and tertiary education. Unfortunately, data on the number of enrolled students divided into one year age groups is available only until the age of 34. After this age, groups are available for the age group 35-39 and 40+. In these age groups, uniform distribution of the number of students was applied. The upper limit at age 50 in the last age group was arbitrarily assumed. Again, age profiles of education consumption are not smoothed.

Figure 15. Unsmoothed age profile of public education consumption, Slovenia, 2010

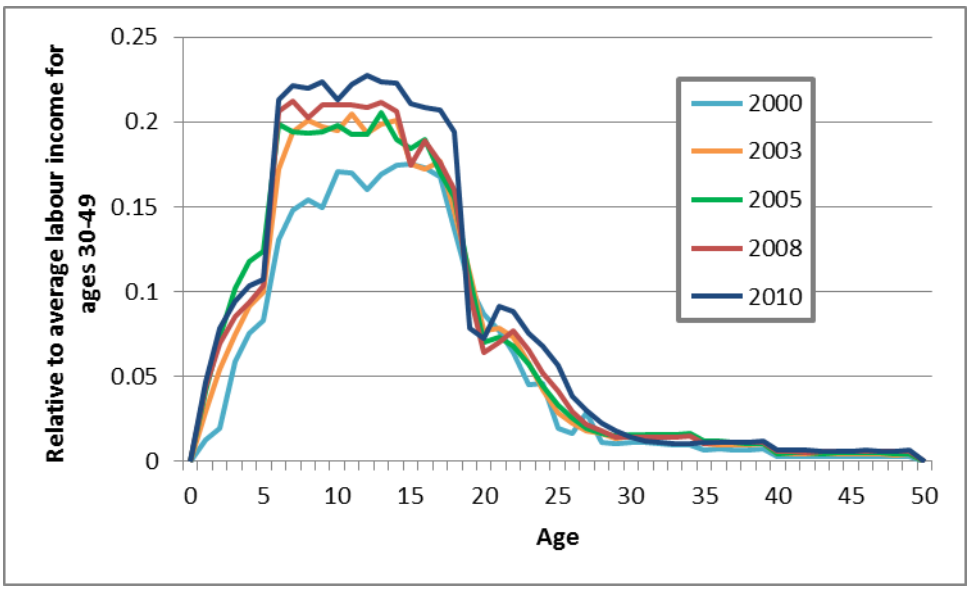


Source: *Eurostat, General government expenditure by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; United Nations Educational, Scientific and Cultural Organisation, Expenditure on education as % of total government, 2014.*

Figure 15 presents the *per capita* age profile of public education in 2010. Comparing public and private consumption on education reveals that private expenditures on education are much smaller than public ones. During kindergarten, public and private consumption age profiles have very similar diagrams. Just before primary school, enrolment *per capita* expenditures on education increase heavily. While private consumption starts to fall after kindergarten, *per capita* public consumption remains stable. This stability is an aftereffect of the mandatory enrolment in primary education and the assumed equal expenditures on education by level, disregarding the age of an individual. Subsequently, expenditures start to decline as a reaction to smaller participation rate and smaller cost per pupil. After completing secondary school, enrolment rates shrink. Even though unit costs per student during tertiary education are higher than in lower education levels, downturn in tertiary education participation rate lowers public education expenditures per student after the age of 18.

Figure 16 reveals the evolution of public consumption on education over time. Public spending as a share of labour income rises over time. In most of the educational period, relative *per capita* expenditures in 2010 exceed expenditures in other years. During primary and secondary school, relative *per capita* expenditures rise over time due to smaller population rates and also higher costs per enrolled pupil. While the magnitude of public education consumption changes significantly over time, the shapes of age profiles stay very similar. The higher tertiary education participation rate in 2010 compared to other years results in a hump in the early 20s, as an outcome of people's higher human capital investments, generous benefits for students and the non-rigidity of students' labour market.

Figure 16. Evolution of public education consumption, Slovenia, 2000-2010



Source: *Eurostat, General government expenditure by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; United Nations Educational, Scientific and Cultural Organisation, Expenditure on education as % of total government expenditure, 2014.*

4.3.2 Health

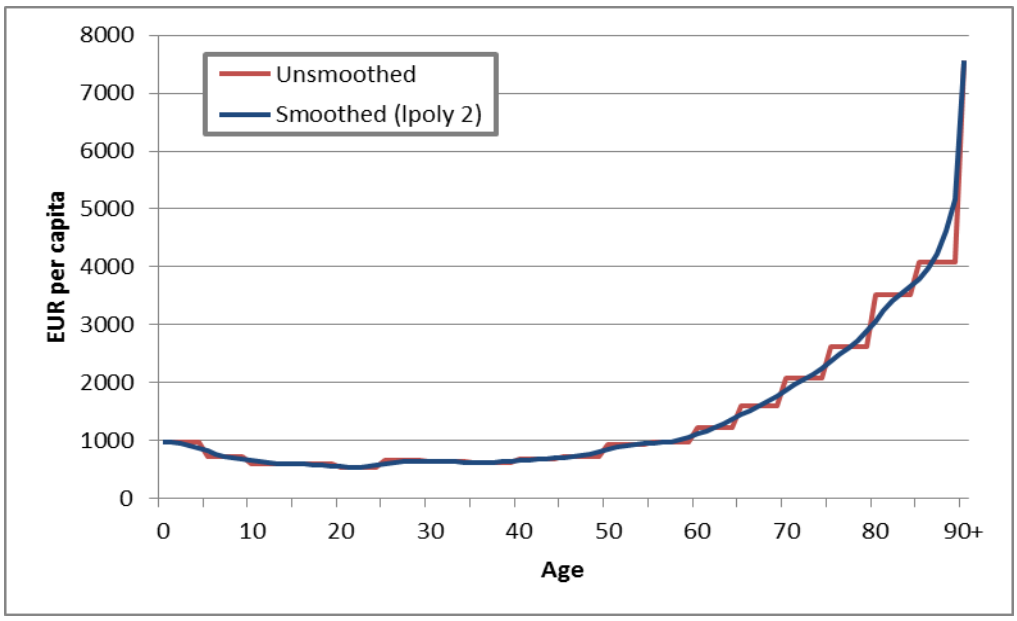
Public health expenditures measured by the NTA methodology consist of health and long-term care expenditures. To estimate the public health consumption age profile we apply internal data used for long-term projections of public expenditures. Data on public *per capita* expenditure is available only by five-year age groups. We disaggregate these data into one-year age groups, using the smoothing procedure, with the smoothing factor 2. Unfortunately, such data are available only for the years 2004 and 2009. We use the age profile from 2004 as an approximation for the age profiles in years 2000, 2003 and 2005. On the other hand, the age profile from 2009 is used as an approximation for the age profiles in 2008 and 2010. *Per capita* age expenditures are adjusted to different aggregate values each time.

In practice, health and long-term care are difficult to separate, therefore, the separation is usually arbitrary. In 2004, the estimated value of public expenditures on long-term care amounts to 217.1 million EUR, while official public expenditures on health care achieve the value of 1,769.2 million EUR. The value of expenditures on health overlaps with long-term care in 102.2 million EUR. This amount should be subtracted from health care expenditures. The NTA aggregate value for public health expenditures, as the sum of health and long-term care, is therefore 1,884.1 million EUR. In 2004, long-term care age profiles are available for broad age groups, while data on health care expenditures are available for five-year age groups, with a separate age profile for the first year of life (Sambt, 2009, pp. 65-66).

In 2009, the value of public expenditures on long-term care amounts to 507.0 million EUR, while public expenditures on health care equals 2,174.2 million EUR. This means that public

health care expenditures overlap with the value of long-term care in 183.1 million EUR. The calculated amount should be subtracted from the public health care expenditures. The result represents the NTA aggregate value for public consumption on health, and amounts to 2,498.1 million EUR. Age profiles for health and long-term care are available for five-year age groups, without a separate age profile for new-borns in 2009.

Figure 17. Unsmoothed and smoothed age profiles of public health consumption, Slovenia, 2010



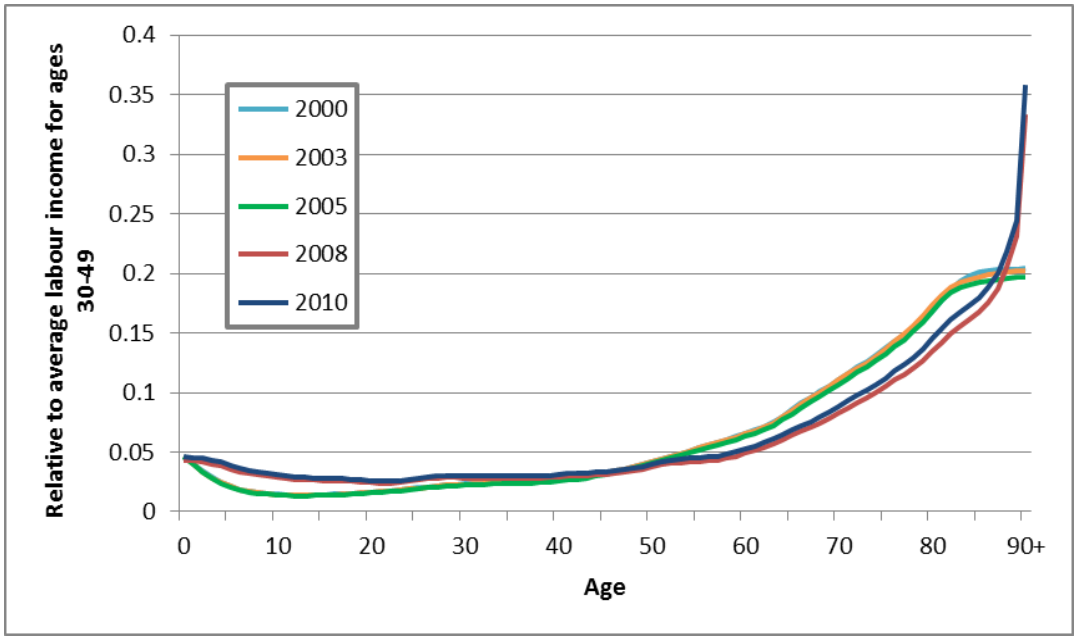
Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, General government expenditure by function, 2014.*

Figure 17 depicts unsmoothed and smoothed age profiles of public health consumption in 2010. Public health consumption notably surpasses private health consumption. While private health consumption slowly increases over all ages, public health consumption starts to increase critically after retirement. The empirical evidence shows that health expenditures rise significantly with age and increase sharply in the time before death (Felder, Meier, & Schmitt, 2000, p. 690). The significant increase in expenditures is mainly the result of a substantial increase in long-term care expenditures.

Figure 18 demonstrates the evolution of public health expenditures between 2000 and 2010. The differences in the age reallocation of public health expenditures over the years are mainly the result of methodological discrepancy in age profiles from 2004 and 2009 used as approximations. The age profile from 2004 treats the *per capita* value of expenditures for new-borns separately from other ages in the first five-year age group. In the years 2000-2005 total public expenditures of the first five-year age group are mainly allocated to new-borns, and then expenditures start to fall. On the other hand, age profiles from 2008 and 2010 reflect a higher accuracy of the age profile from 2009 for the elderly. A substantial increase in public health consumption in last decade of life reflects a forceful rise in long term-care expenditures.

Public health consumption relative to the average labour income increases from 2008 to 2010, as a result of the adjustment on a higher aggregate control and also higher denominator in 2008.

Figure 18. Evolution of public health consumption, Slovenia, 2000-2010

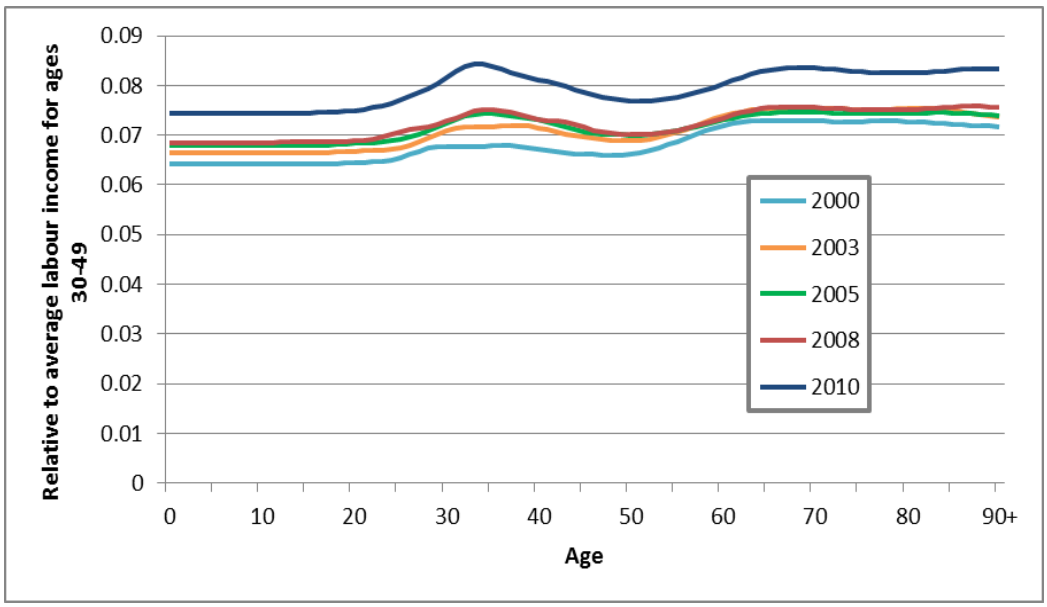


Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, General government expenditure by function, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14.*

4.3.3 Public Consumption other than Education and Health

Most public consumption other than health and education is the so called collective consumption. Collective consumption includes national defence government consumption, consumption on public roads, lights and consumption on other public goods. All residents are assumed to be beneficiaries of collective consumption. We assume that all individuals consume an equal amount of collective consumption, therefore it should be distributed uniformly among the age groups. However, part of other public consumption is individual, therefore, whenever possible, we distribute other public consumption over age. There are no specific administrative data on the distribution of public consumption other than education and health. Therefore, we need to impose certain assumptions. In the case of public consumption in-kind for variables like old age consumption, disability and sickness or family and children consumption, the age profile for the corresponding in-cash category (explained later in the text) is used.

Figure 19. Evolution of other public consumption, Slovenia, 2000-2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, General government expenditure by function, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

Figure 19 demonstrates that public consumption expenditures relative to the average labour income increase over time. Because collective consumption presents the main part of other public consumption and is uniformly distributed, the shape of age profiles does not change significantly over time. Figure 19 shows that, in all the years, two humps are present. The first one reveals family and children in-kind consumption and the second one disability and sickness and old age in-kind consumption. The substantial increase in relative other public consumption in 2010 is the consequence of government stimulus plans during the crisis and also a decreased average labour income for the ages of 30-49 between 2008 and 2010.

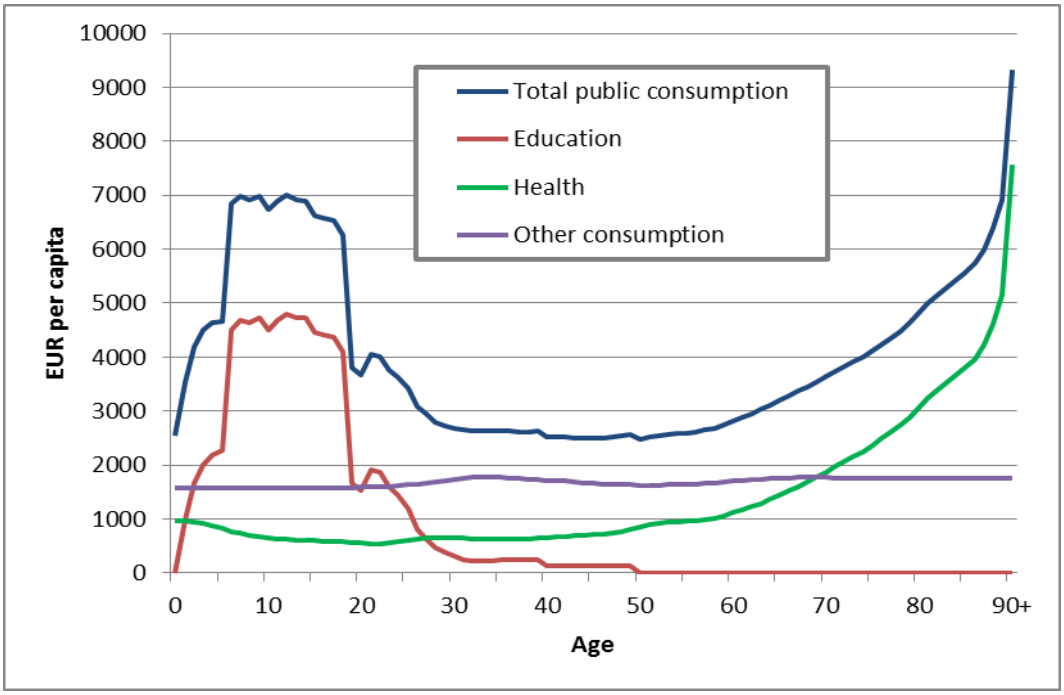
4.3.4 Total Public Consumption

Because the main part of other public consumption is uniformly distributed over the age groups, the age profile of total public consumption represents primarily the age difference in public education and public health consumption. The age profile of total public consumption has two humps. The first hump in the childhood age group is the result of high public education consumption. The second hump results from expanded public health consumption mainly driven by high long-term care expenditures for the elderly. Total public consumption and its subcategories from 2010 are presented in Figure 20.

While children and old people receive a significant amount of in-kind public transfer inflows, this is usually not the case for working-age adults. Working-age adults mainly receive transfers

in the form of collective consumption which is, by assumption, uniformly distributed over the age groups.

Figure 20. Age profiles of total public consumption and its subcategories, Slovenia, 2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, General government expenditure by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014; United Nations Educational, Scientific and Cultural Organisation, Expenditure on education as % of total government expenditure, 2014.*

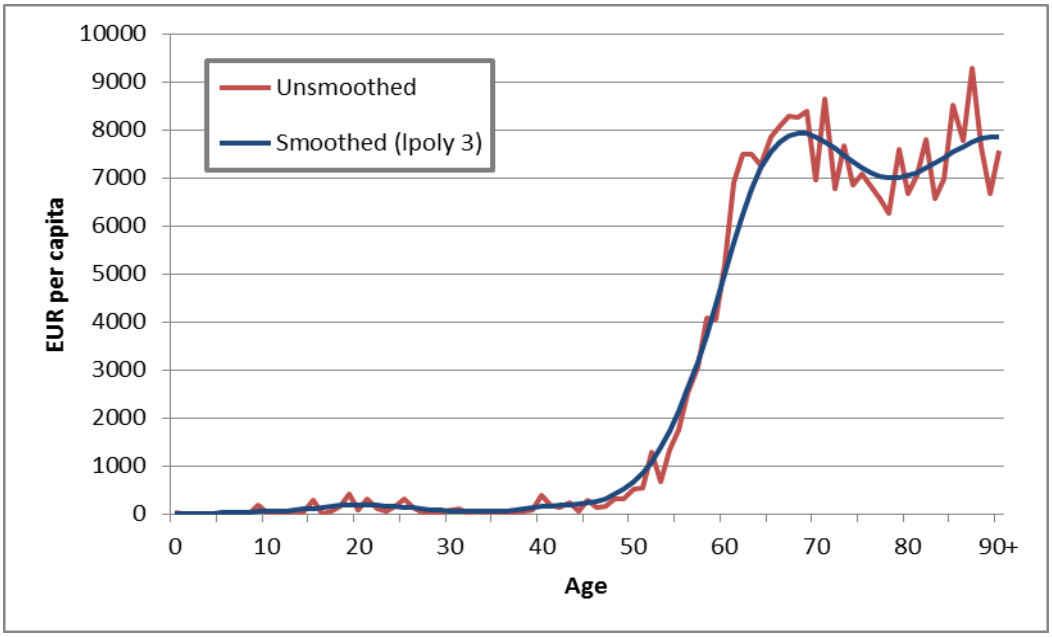
4.4 Public Transfer Inflows In-cash

Public transfer inflows represent the sum of public transfers in-kind and public transfers in-cash. Public transfers in-kind are by assumption equal to the public consumption analysed before. Public transfers in-cash are direct payments that individuals receive by the government. We divide them into different subcategories, depending on who the beneficiary is.

In the NTA, public transfer inflows in-cash are divided into education, health, pensions, disability and sickness, family and children, unemployment, miscellaneous social protection and other public cash transfers (Hammer, 2014, p. 28). Tree main categories: pensions, family and children and disability and sickness social protection represent together 82.5% of total public cash transfers. Pensions (including survivors) represent the majority of public cash transfer inflows, 64.5% of the total (Social protection expenditure-Tables by benefits, by function, 2014). Beneficiaries of pensions and family and children cash allowance differ a lot according to their age. Therefore, we decide to present only these two age profiles.

As mentioned before, public transfer inflows in-cash are benefits provided directly by the government; therefore, they present income to the beneficiaries reported in HES. The age profile for pensions is measured using reported income on pensions. Data on pensions provided by HES do not distinguish between different kinds of pensions; therefore, reported pensions include old age and also survival pensions.

Figure 21. Unsmoothed and smoothed age profiles of public transfer inflows in-cash for pensions, Slovenia, 2010



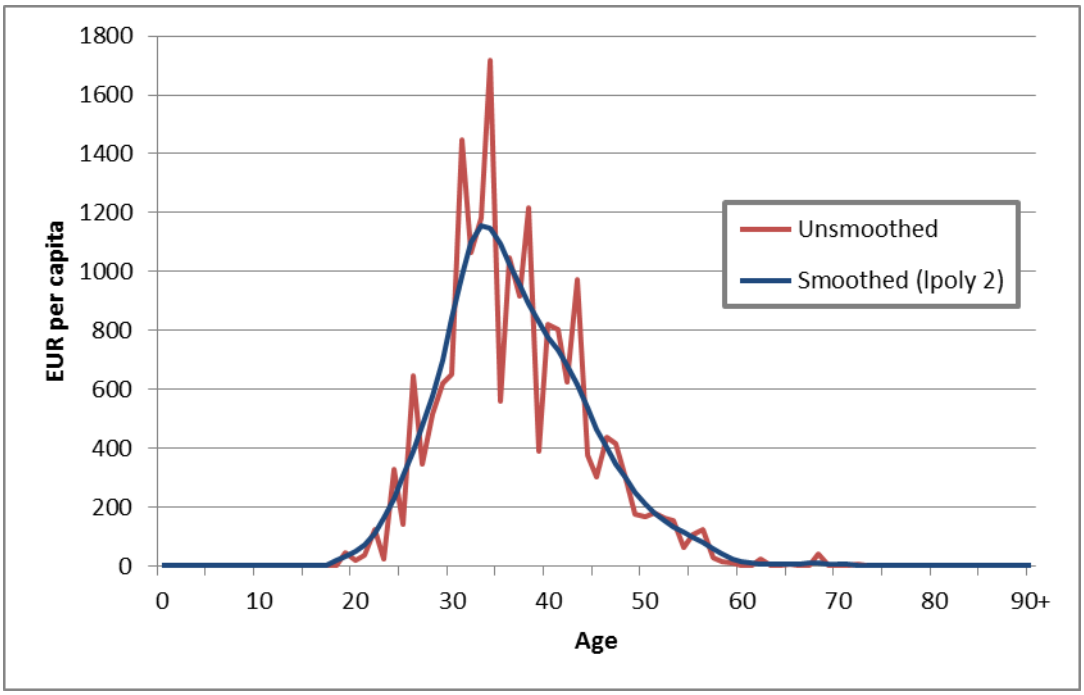
Source: *Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014.*

As a consequence of the socialist system in the past, the majority of old people still expect the government to take care of them, rather than leave them to care for themselves (Sambt & Malačič, 2011, p. 342). Figure 21 shows the unsmoothed and smoothed age profile of public pensions in 2010. Public pensions are rather small until the late 40s, because they mainly include survivor pensions. Later, they start to accelerate at about the age of 50 with disability pensions, and peak in the late 60s when individuals with full working careers retire. After a peak, pensions decrease until the late 70s, when they change direction again. The comparison between Figure 5 and Figure 21 reveals that even at its peak, pensions are low compared to labour income. The difference is the result of evidence that labour income is expressed in gross terms and pensions in net terms.

Social protection for family and children presents the second major part of public transfer inflows in-cash. We use following variables to make the age profile for family and children public inflows in-cash: child allowance, parental leave allowance (Sln. *denarno nadomestilo za čas porodiške*), parental allowance (Sln. *starševski dodatek*) and package for the new-born child (Sln. *paket za novorojenčka*). While in the case of pensions, beneficiaries can be determined in a

straightforward fashion, in the case of family, defining beneficiaries is more complicated. According to the NTA methodology, allowances flow to the household head. Parents then freely decide in which way they want to spend the received cash allowance. If they indeed spend it on children, this is recorded as intra-household transfer from household head to the children.

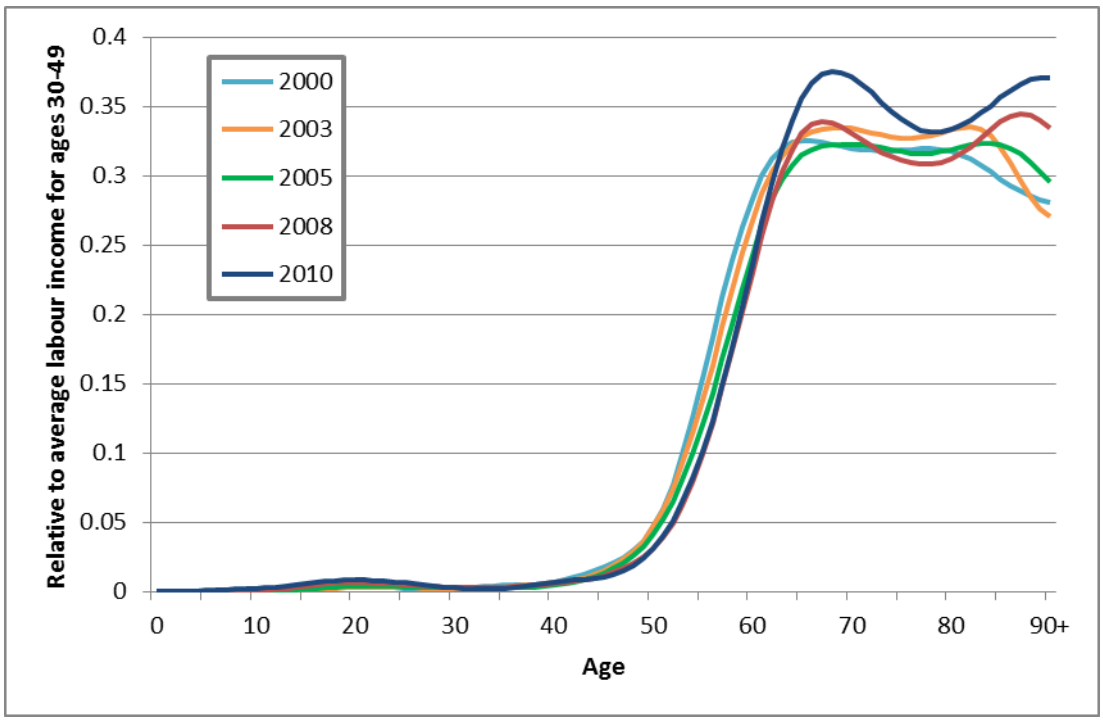
Figure 22. Unsmoothed and smoothed age profiles of public transfer inflows in-cash for families and children, Slovenia, 2010



Source: *Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On‑demand micro data, 2014.*

Figure 22 shows the age profile of public family transfer and children inflows in 2010. The age profile for child and family social protection peaks at the age of 34. The highest level of family related allowances extends between the late 20s and mid-40s. This is a period of highest probability of being a parent and therefore provided with large amounts of family and children allowances.

Figure 23. Evolution of public transfer inflows in-cash for pensions, Slovenia, 2000-2010



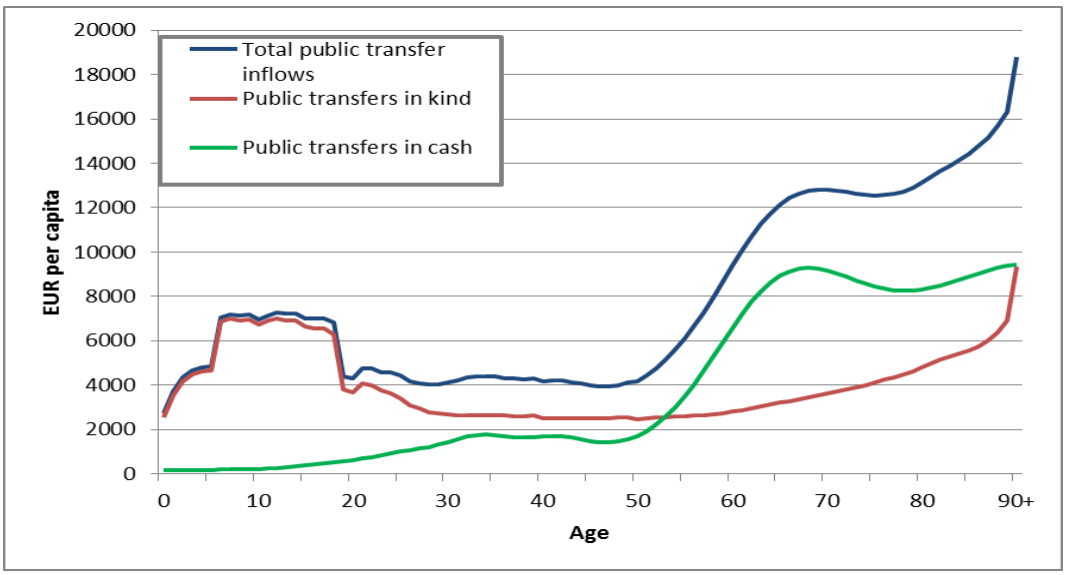
Source: *Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On ‑demand micro data, 2014.*

In Figure 23 we demonstrate the evolution of public transfer inflows for pensions between 2000 and 2010. As seen in the age profile of labour income in Figure 6, people work longer and therefore retire later. Even though a double hump in the age profile in 2010 exists, old age pensions relative to average labour income are always higher in 2010 than in other years.

Population aging brings an additional burden on working-age population to cover the benefits of economically dependent old people. The generosity of Slovenian pension system would without proper reform of the current pay-as-you-go system seriously jeopardize the long-term sustainability of the public finance system (Berk Skok, Čok, Košak, & Sambt, 2013, p. 368).

Figure 24 depicts total public transfer inflows and its subcategories in 2010. Until the late 20s, total public inflows mainly exhibit the age pattern of public education consumption. Transfers stabilize during the working ages, reflecting mainly public collective consumption. Adults additionally receive family and children, disability and sickness, unemployment and other cash transfers. The increased total public transfer inflows in the late 50s are mainly the result of increased public health consumption and total public pensions received.

Figure 24. Age profiles of total public inflows and its subcategories, Slovenia, 2010

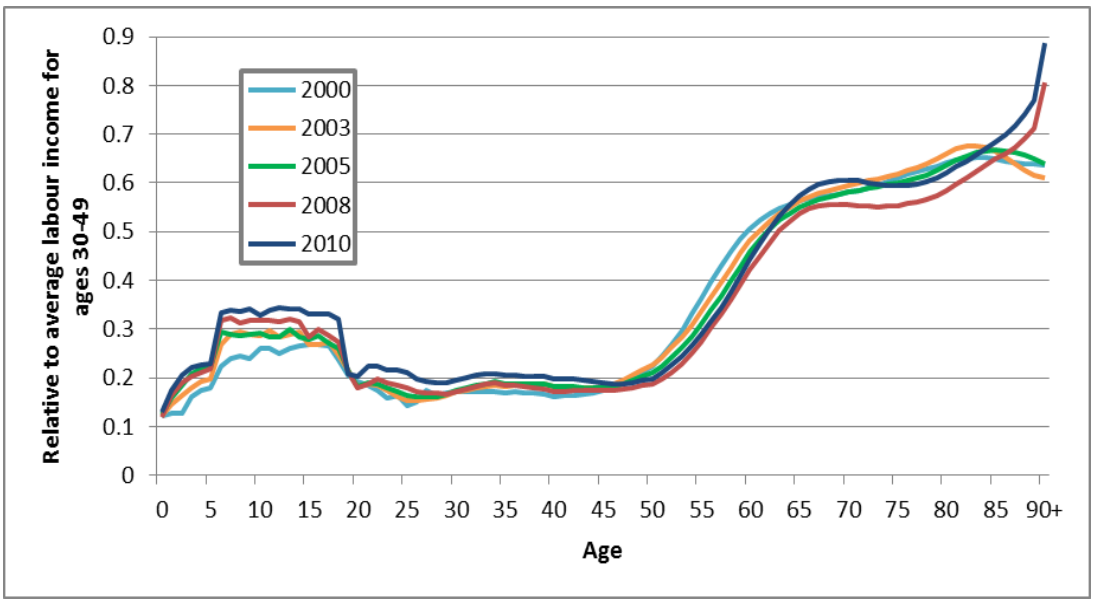


Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, General government expenditure by function, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014; United Nations Educational, Scientific and Cultural Organisation, Expenditure on education as % of total government expenditure, 2014.*

Figure 25 reveals the evolution of total public transfer inflows between 2000 and 2010. Public transfer inflows have two humps in all analysed years. The first one announces schooldays and the second one the final period of life. There exists a difference in public transfer inflows over time. Lately the government supports pupils and students with raised human capital investments. Population aging, on the other hand, forces the government to additionally support old people by providing them with increased health and pension expenditures.

Figure 25 clearly demonstrates two important concepts of contemporary economic society: the first one is the quantity-quality trade-off and the second one population aging. A smaller number of enrolled pupils/students (smaller quantity) caused by a smaller population increases costs per enrolled pupil/student (higher quality) if total education consumption is stable or even increases over time, like in our case. On the other hand, population aging over time yields a bigger burden on the government spending on benefits for the elderly. Higher total public inflows for all ages in 2010 also result from the government stimulus plans during the crisis. However, lower average labour income for the ages 30-49 compared with the year 2008 moves the shape of the relative age profile in 2010 upwards.

Figure 25. Evolution of total public transfer inflows, Slovenia, 2000-2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, General government expenditure by function, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014; United Nations Educational, Scientific and Cultural Organisation, Expenditure on education as % of total government expenditure, 2014.*

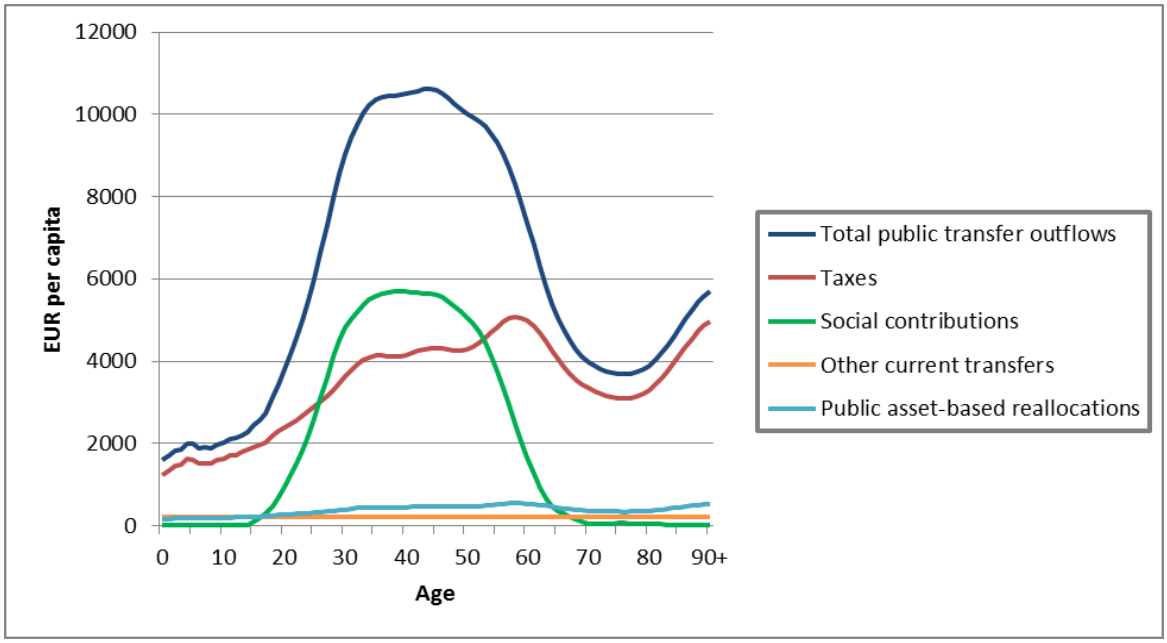
4.5 Public Outflows

Public transfer outflows are used to fund total public transfer inflows. Public transfer outflows present resources that flow away from a particular age group. Beneficiaries of public inflows are mainly different from their funders, therefore the age profile of public transfer inflows usually differs a lot from the age profile of public transfer outflows. If transfer outflows are insufficient to cover inflows, the difference results in transfer deficit. However, if the transfer outflow exceeds inflow, transfer surplus is generated. Because public accounts must be balanced, public transfer deficit or surplus is balanced through public asset-based reallocations. In the case of public deficit the government uses asset income or dissaves to cover the negative difference between inflows and outflows (United Nations, 2013, pp. 114-121).

Public transfer outflows contain taxes, social contributions and other current transfers. Taxes are usually separated into different subcategories. We split the total of all taxes into taxes on income, profits and capital gains, taxes on payroll and workforce, taxes on property income, taxes on goods and services, and other taxes (United Nations, 2013, p. 120). Age profiles of public transfer outflows are based on existing age profiles. To allocate public outflows by age we need to know the source of specific outflows. For example, age profiles of taxes on payroll and workforce or social contributions are based on the age profile of labour income, while taxes on goods and services are based on the private consumption age profile. Because public transfer

outflows age profiles are based on the existing (smoothed) age profiles they are not smoothed again. We only adjust them to the corresponding aggregate values of outflows. Figure 26 presents total public transfer outflows and its subcategories in 2010.

Figure 26. Smoothed age profiles of total public transfer outflows and its subcategories, Slovenia, 2010

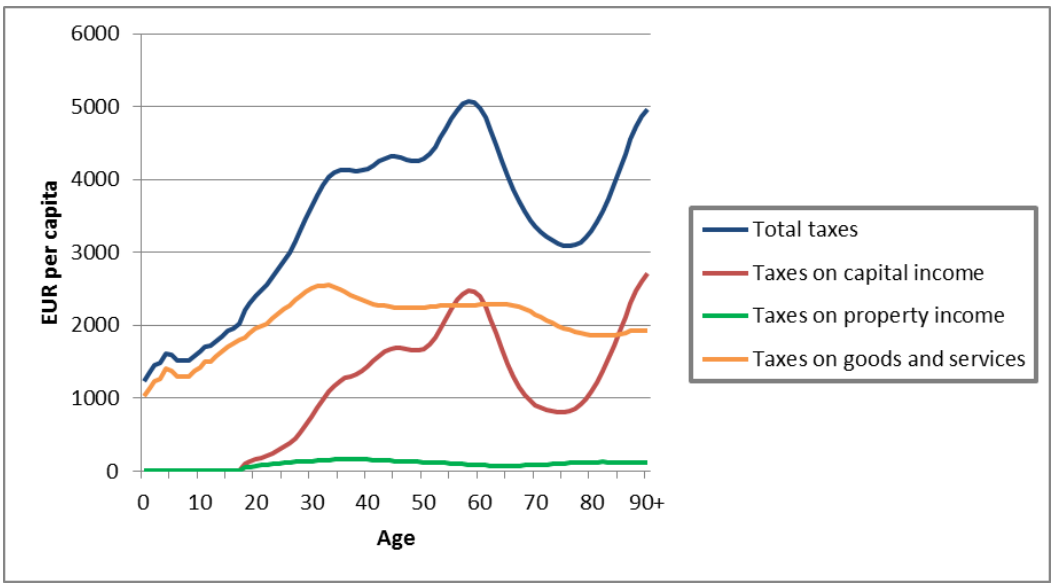


Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Ministry of Finance, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

The age profile of total public transfer outflows has a hump with a peak at the working ages. The pattern is mainly the consequence of the social contributions age profile, presenting a constant proportion of the labour income age profile. Public transfer outflows increase sharply after the age of 20 when the majority of young adults enter the labour market. Public transfer outflows are lowest for children. Children consume goods and services, therefore, they pay sales taxes (for which they receive resources through intra-household transfers mostly from their parents). Old people pay taxes on consumption and asset income. Old people generally own more assets than any other age group (Miller, 2011, pp. 171-172).

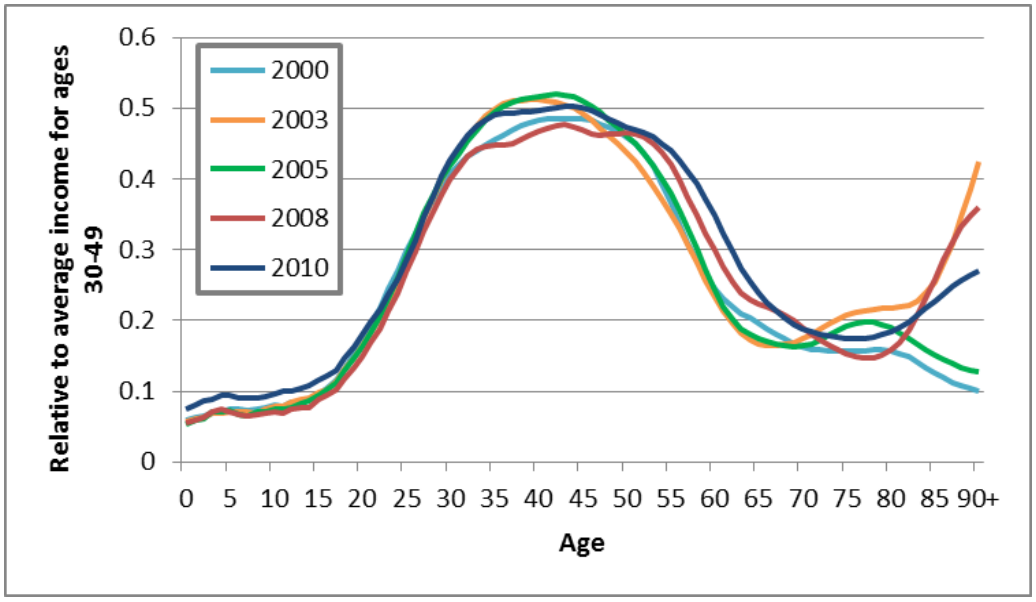
Public transfer outflows gravely increase in the mid-70s as a reaction to the substantial raise of total taxes. To find a cause for this pattern, we should split taxes into different components. Figure 27 shows total taxes and their subcategories. We include only those taxes that have an important age pattern and are usually paid by old people. These are taxes on capital and property income and taxes on consumption of goods and services. Figure 27 reveals that the hump of total transfer outflows in older ages is a consequence of high taxes on income, profits and capital gains paid by the elderly in 2010.

Figure 27. Smoothed profiles for total taxes and their subcategories, Slovenia, 2010



Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Ministry of Finance, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014.*

Figure 28. Evolution of total public transfer outflows, Slovenia, 2000-2010

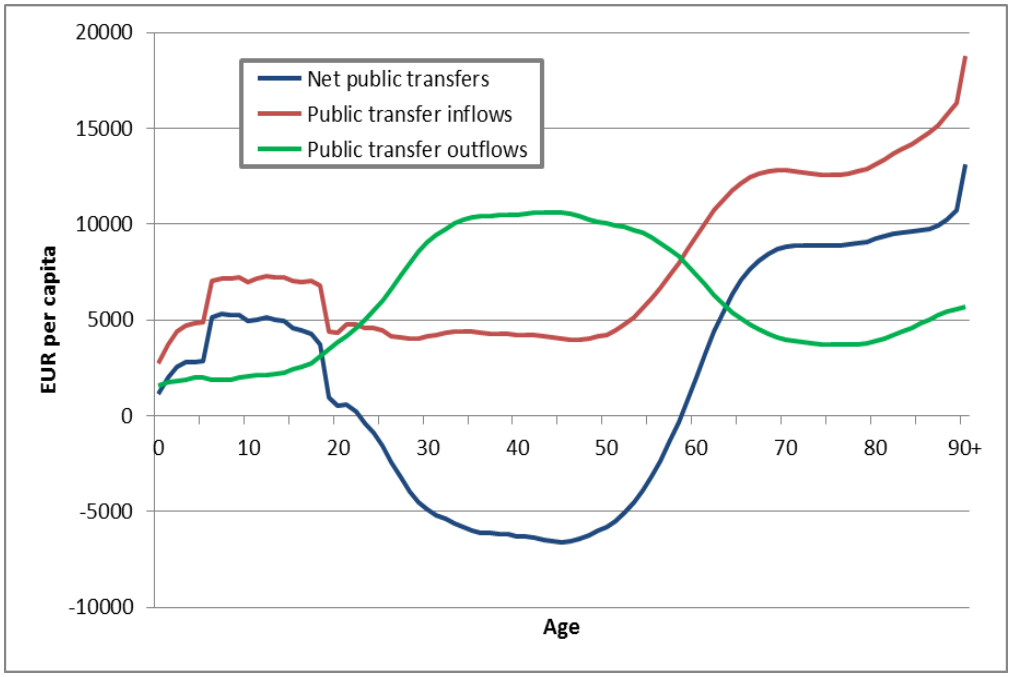


Source: *Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Ministry of Finance, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014.*

Figure 28 shows the evolution of public transfer outflows through 2000-2010. Child public outflows relative to the average labour income are highest in 2010 as a result of the highest total consumption by children compared with other years. Because people nowadays start to work later and they also retire later, the distribution of public outflows moves to the right over time. In the years 2003, 2008 and 2010 old people are paying high taxes on capital income. Great investments in assets in 2003 can be explained by the high expectations of raised efficiency on the market after Slovenia's entering in the European Union (hereinafter: EU) (Sambt & Malačič, 2011, p. 341). In the years 2008 and 2010 this pattern can be explained by the high investment in capital by old people before the crisis, still possessing mainly capital income, also after the crisis began.

Net public transfers represent the difference between public transfer inflows and public transfer outflows. Net public transfers are positive for children and old people and negative for adults. Net public transfers and its components from 2010 are presented in Figure 29.

Figure 29. Net public transfers and its subcategories, Slovenia, 2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

4.6 Inter-household Transfers

Private transfers are divided into inter-household transfers and intra-household transfers. Inter-household transfers are assumed to flow from and to the household head. The age profiles of inter-household transfers can be directly estimated using data from HES (Mason & Lee, 2011a, p. 72). For both, inter-household transfer inflows and outflows the same HES categories are used, for the first case reported as income and for the second case as expenditures. These variables are: alimony from former spouse (Sln. *preživnina od nekdanjega zakonca*), alimony for children received (Sln. *prejeta preživnina za otroka*), regular monetary assistance from non-household members, received assistance for old person (Sln. *prejeta vzdrževalnina ostarele osebe*) and received monetary gifts (Sln. *prejeta denarna darila*).

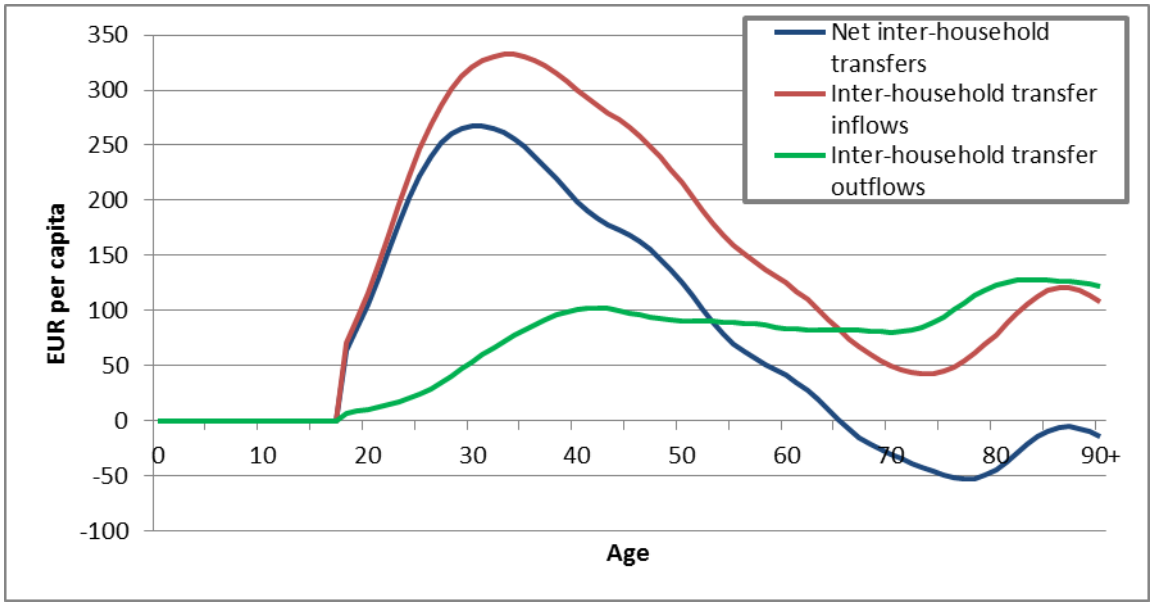
Aggregate values of inter-household transfer inflows and outflows are not available in the SNA. In the SNA, aggregate control is available only for net inter-household transfers. To obtain aggregate values for inflows and outflows we assume that the sample from HES is perfectly representative. We estimate the aggregate values by multiplying the total sample value of the flow by the ratio between total population and the sum of all weights in the sample (United Nations, 2013, p. 144). Survey aggregate control for inter-household transfer inflows in 2010 amounts to 86.14 million EUR, while for outflows its amount equals 131.85 million EUR. The difference between these two values should equal inter-household transfers from the ROW, which was 205.63 million EUR in 2010. Using survey data the value of this difference is different from the aggregate value obtained from the SNA.

The NTA methodology proposes different approaches on how to properly adjust inter-household transfer inflows and outflows. One of the possible methods is the adjustment of inflows or outflows, upward or downward, so that the difference will be equal to the net flows from the ROW reported in the SNA (United Nations, 2013, p. 144). To decide which flow should be adjusted, we need to consider whether the reported values are under- or over-reported. Following Sambt (2009, p. 74), we assume that in HES the values of inter-household inflows are underestimated and should therefore be adjusted. Net flows from the ROW are positive (205.63 million EUR) in 2010, meaning that inflows from the ROW exceed outflows to the ROW. If we take the survey estimation of aggregate control for outflow as correct, private transfer inflows in 2010 should amount to 337.48 million EUR.

In the case of inter-household inflows and outflows we use the smoothing procedure with the smoothing parameter 4. For inflows and outflows we do not apply the smoothing procedure until the age of 18. The reason is that smoothing creates fat tails in the period of childhood and young adults' period. Because inter-household transfers are assigned to the household heads only, no one should receive or give any flow below the age at which people become household heads. Together, unsmoothed and smoothed age profiles of inter-household transfer inflow are presented in the Appendixes B and C.

Figure 30 shows smoothed age profiles of net inter-household transfers and its subcategories in 2010. Inter-household transfers by assumption flow to/from the household head, therefore, children do not receive/give any inter-household transfers. Inter-household transfers are mainly received by young adults, increasing substantially between the 20s and early 30s. After a peak at the mid-30s, inflows start to decrease. They are declining until the mid-70s when they start to rise again. Inter-household transfer outflows rise a bit more steeply after the age of 18, reaching their local maximum later in the early 40s. After reaching a peak they are rather stable until the mid-70s, when they start to increase again. Inter-household transfer inflows are therefore mainly received from the elderly. The relative stability of inter-household transfer outflows means that the net inter-household transfer age profile resembles mainly the pattern of the inter-household transfer inflows age profile.

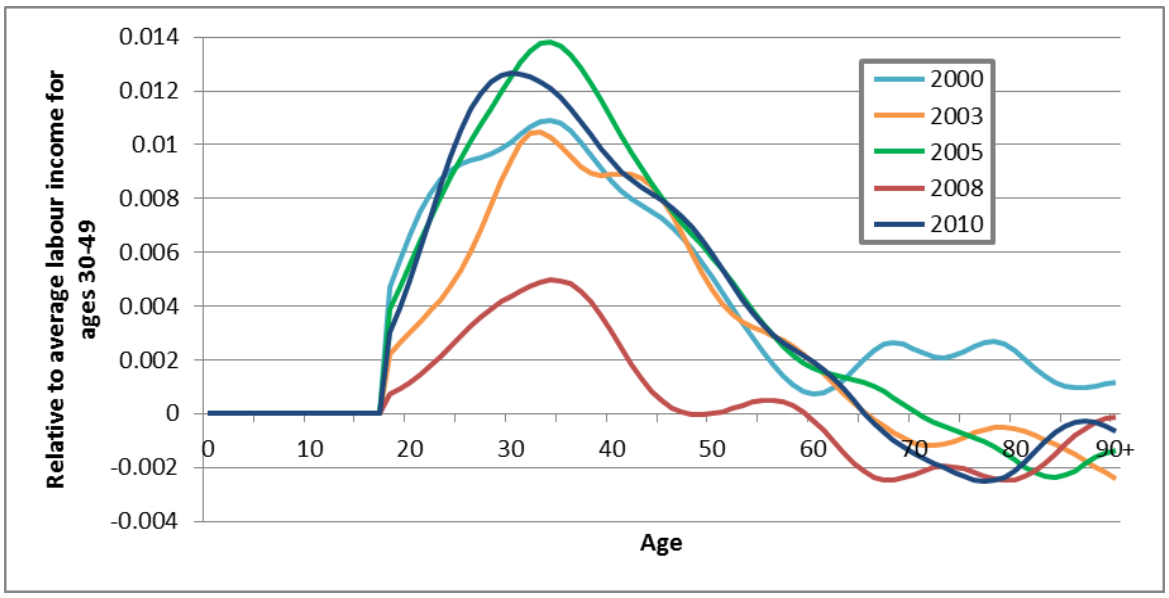
Figure 30. Smoothed age profiles of private net inter-household transfers and their subcategories, Slovenia, 2010



Source: *Eurostat, Non-financial transactions, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014.*

Figure 31 presents the evolution of net private inter-household transfers. Inter-household transfer outflows are relatively stable during the working ages in all the studied years. On the other hand, inflows have a hump in the early or middle working ages. After a peak, inflows start to decrease and diminish in 2000 and 2003 until retirement. In 2008 and 2010 they are falling even after retirement, starting to rise again in the mid-70s. The evolutions of inter-household transfer inflows and outflows can be seen in the Appendixes D and E. Net inter-household transfers, as the difference between inflows and outflows, are positive during the working ages, and become negative during retirement, with the exception of the year 2000 where inflows exceed outflows at all ages. Working-age people are therefore mainly net beneficiaries and the elderly net givers of inter-household transfers.

Figure 31. Evolution of net private inter-household transfers, Slovenia, 2000-2010



Source: *Eurostat, Non-financial transactions, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On ‑demand micro data, 2014.*

4.7 Intra-household Transfers

While the age profiles for inter-household transfers can be directly estimated using survey data, intra-household transfers can be estimated only indirectly. Intra-household transfers present the balancing item between private consumption and disposable income. Disposable income presents the sum of labour income, net private transfers, public cash transfer inflows less taxes paid for each household member. Household members whose private consumption exceeds disposable income are in a deficit. These members receive intra-household transfers from the member(s) with surplus, meaning that their disposable income exceeds their consumption. If disposable income of the whole household is not enough to cover household consumption, the household head must cover the difference through additional resources originating from assets (i.e. through asset-based reallocations) – either from asset income or by dissaving. On the other hand, if disposable income of the household exceeds household consumption, the difference is transferred to the household head, who saves the residual (Mason & Lee, 2011a, p. 72). Behind all these relations there exists an important assumption; the household head owns all household assets and all the income from these assets is transferred to the household head.

Assigning all the assets to the household head has important consequences for the calculations of the intra-household transfers. The non-head members who are in deficit rely on the assets of the household head. On the other hand, non-head members with surplus do not save, instead, the positive difference between their disposable income and consumption is transferred to the household head. The non-head members who are in deficit therefore obtain inflows, while those who are in surplus experience outflows. The household head is, by assumption, the only person who can obtain both, current inflows and current outflows (Mason & Lee, 2011b, p. 73).

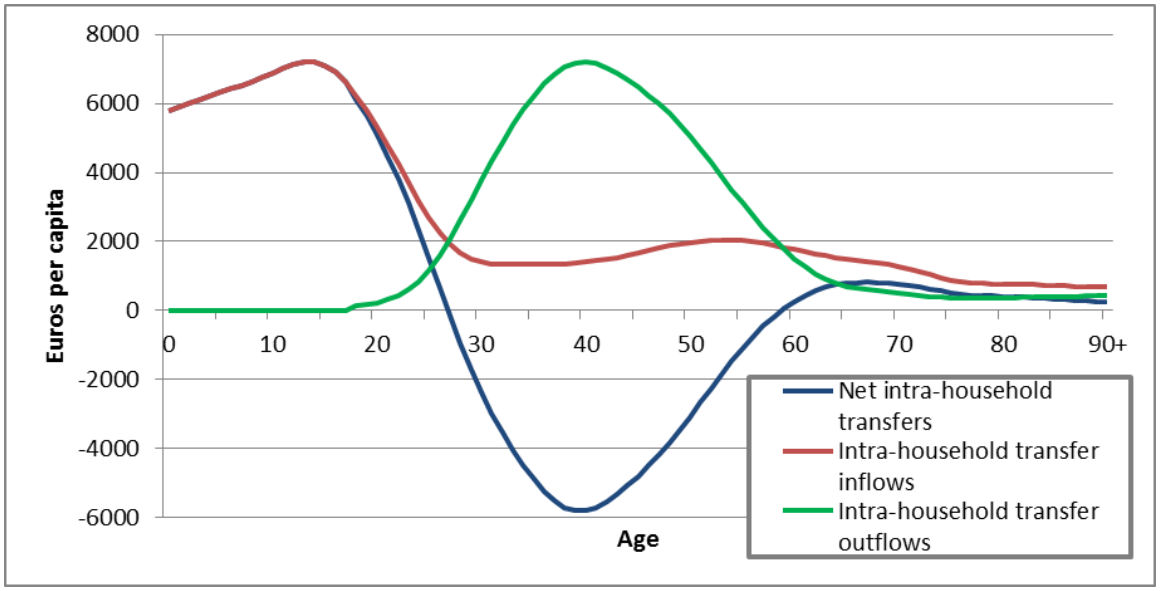
We compute intra-household transfers in four steps. First, we compute the current deficit or surplus of each household member (including the household head). A household member is in deficit if her consumption (excluding consumption of owner-occupied housing) exceeds her disposable income; otherwise she generates a surplus. Then we compute the total household deficit and total household surplus. Household deficit denotes the sum of all members' deficits, while household surplus is the sum of all members' surpluses. There exists a shortfall if the household total deficit exceeds the household total surplus. This shortfall is then financed by household heads, using asset income that she owns. If the asset income is not enough to cover the shortfall, she dissaves. In the next step, we calculate the so called household specific tax rate, as the ratio between the household deficit and household surplus. The tax rate is by assumption equal for all members in surplus and it is imposed on their income. Taxed surplus is then transferred to all household members in deficit. The next step is to calculate intra-household transfer outflows. For non-household heads it is equal to the product between the tax rate and the member's surplus, while for the household head it equals the sum of the product between tax rate and surplus and any shortfall that has to be financed through asset-based reallocations. Finally, we calculate intra-household transfers by function (education, health, other), inflows and outflows separately (United Nations, 2013, pp. 148-149).

Purpose-specific intra-household transfers demonstrate which sector is being funded by intra-household transfers; education, health or some other. To make purpose-specific intra-household transfer inflows we need to assume that the size of the purpose-specific intra-household inflow is proportional to the purpose-specific consumption (in total consumption) by the individual, who is the target of this inflow (Mason & Lee, 2011a, p. 73). On the other hand, purpose-specific outflows are proportional to the total purpose-specific household inflows. Any non-taxed surplus of a member is transferred to the household head, who saves the residual (United Nations, 2013, p. 149).

In Figure 32 we present net intra-household transfers, inflows and outflows in 2010. The figure shows that net intra-household transfers are highest for children. Net intra-household transfers rise until children mature, and then they start to fall as a consequence of decreased inflows and increased outflows. During the working ages net intra-household transfers are negative. They become positive again in the early years of retirement when intra-household transfer inflows again exceed the outflows. Private intra-household transfers on average flow downwards, from adults to children.

In many countries net private transfers (with the main component of intra-household transfers) to old people are negative. For Slovenia, this empirical evidence does not hold. The elderly in Slovenia receive positive net private transfers (Lee & Donehower, 2011, p. 198). This can be seen in Figure 32.

Figure 32. Smoothed age profiles of private net intra-household transfers and their subcategories, Slovenia, 2010

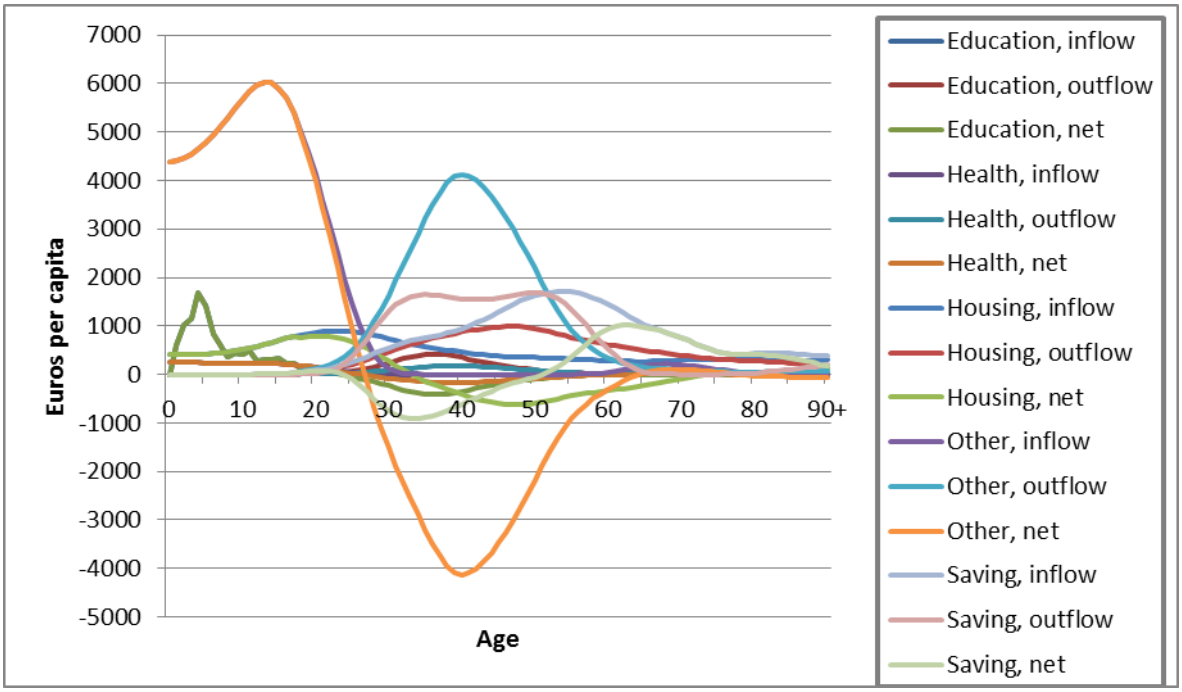


Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Figure 33 shows purpose-specific intra-household net transfers and its subcategories in 2010. We disaggregate four different sectors: education, health, housing, and other. Figure 33 reveals that intra-household transfers from the sector "other" completely prevail over intra-household transfers from other sectors. This was expected, since other private consumption presents the main part of the total private consumption (Figure 13). Children, therefore, mainly cover their deficit by other intra-household transfer inflows.

At the beginning of their life, children severely depend on transfers received from their parents. Therefore, other net intra-household transfers reach a peak at the age of 13, and then they start to decrease. During the working period net intra-household transfers become negative, reaching the minimum at the end of the 40s. At these ages people most intensively cover the deficit of other age groups. A similar pattern can be seen in education transfers, but of far smaller magnitude. Housing intra-household transfer inflows reach a peak in the mid-20s, financed mainly in the late 40s. Health intra-household transfers are mainly received by children and financed by the working-age population.

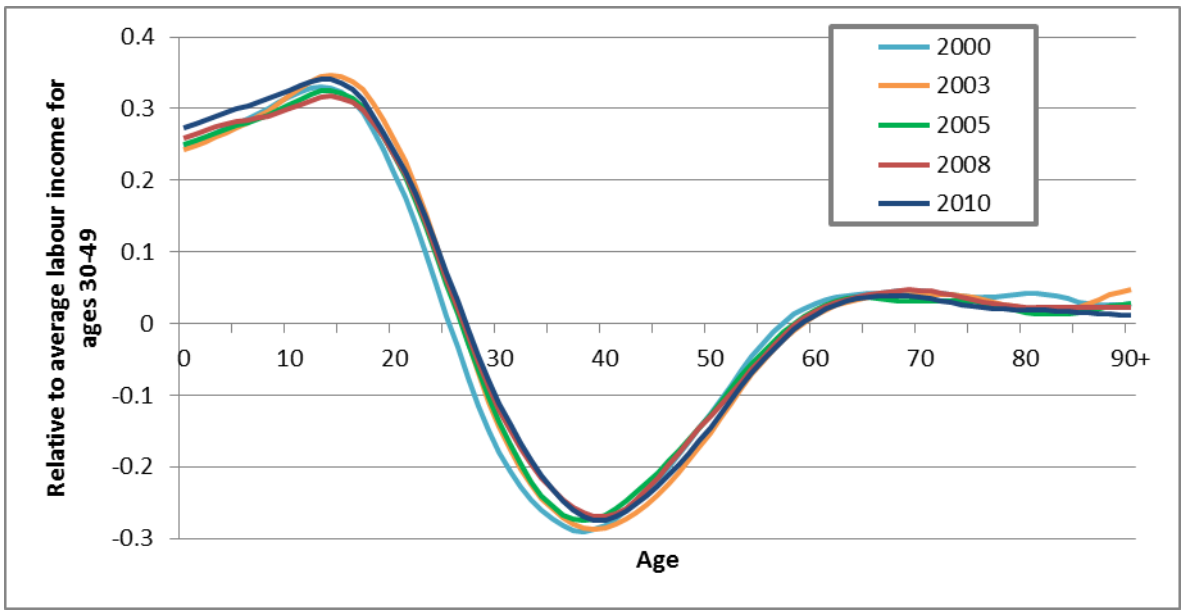
Figure 33. Smoothed profiles of purpose-specific private net intra-household transfers and its subcategories, Slovenia, 2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Figure 34 demonstrates that the net intra-household transfers' distribution moves to the right over time. Children spend a longer time being dependent on their parents' transfers, which is in line with the labour income age profile shifting to the right as well (Figure 6). The children's inflows are highest in 2010. While lately the dependency of children and young adults prolongs, adults become capable to outflow their surplus at higher ages. The duration of negative net transfers stays stable over time; it is only postponed to later ages. Net transfers to old people are positive in all the examined years; they are lowest in 2010. A lower value of intra-household transfers for old people in 2010 results from an increased generosity of the public system. Net intra-household transfers consist of inflows and outflows, therefore also the evolution of intra-household transfer inflows and outflows is attached in the Appendixes F and G.

Figure 34. Evolution of net private intra-household transfers, Slovenia, 2000-2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

4.8 Asset-based Reallocations

Public asset-based reallocations

Asset-based reallocations are divided into private and public part. Public asset income less public saving is equal to the public asset-based reallocations. Inflows from asset-based reallocation are the result of public asset income earnings or government borrowing. When government saves or pays interest on public debt, outflows occur (United Nations, 2013, p. 114).

Public asset income consists of public capital and property income. Capital income equals operating surplus of the government and usually represents a really small amount. Public property income represents the difference between property income inflows and property income outflows. Property income inflows mainly consist of interest income, dividends and royalties, while outflows primarily include interest payments on public debt. The age distribution of public asset income and public saving between individuals is measured using the general-tax age profile (United Nations, 2013, pp. 121-127).

Private asset-based reallocations

Private asset income, like public one, consists of capital and property income. Capital income represents returns on capital held by households and corporations. Corporations are only intermediaries between the individuals, so all corporate gains and losses are assigned to individuals. Net operating surplus generated by corporations and NPISHs represents an important part of private capital income. Capital income of households consists of the income from owner-occupied housing and capital share of mixed income. Property income, on the other hand, mainly contains income generated through ownership of financial assets, like corporate shares or debt instruments. Private property income inflows are all property income received by private institutions, households, NPISHs or corporations, from any institution, including the government and the ROW. Private property income outflows are outflows from private institutions to any kind of institution, including also the government and the ROW (United Nations, 2013, pp. 138-141).

Age profiles of asset income are based on the household survey data. As already explained, all the asset income is by assumption assigned to the household head. The age profile for net operating surplus of corporations and NPISHs is generated using the age profile of asset income. The age profile of the operating surplus of households is estimated using household survey data of the rental value of owner-occupied housing. The age profile of household capital income is estimated from mixed income in household surveys, using the age profile of self-employment labour income (Mason & Lee, 2011a, p. 75). The NTA assumes that most types of the property income do not include age reallocations, since the receiver and giver are mainly of the same age. However, certain types of property income can result in significant age reallocations, like interest. The interest outflows age profile is estimated using survey data on households' interest expense (United Nations, 2013, p. 142). The net property income age profile is measured using the age profile of asset income.

Private saving in the NTA presents a residual category from household head's flow identity.

$$S^f(x) = Y^l(x) - C(x) + \tau^g(x) + \tau^{inter}(x) + \tau^{intra}(x) + Y^{Af}(x) + \\ + Y^{Ag}(x) - S^g(x) \tag{14}$$

Private saving at the age x equals the sum of the difference between labour income and consumption $[Y^l(x) - C(x)]$, public net transfers $\tau^g(x)$, private net transfers $[\tau^{inter}(x) + \tau^{intra}(x)]$, private asset income $Y^{Af}(x)$, and public asset-based reallocations $[Y^{Ag}(x) - S^g(x)]$ (United Nations, 2013, p. 152).

5 THE LIFECYCLE DEFICIT

5.1 The Magnitude of Lifecycle Deficit

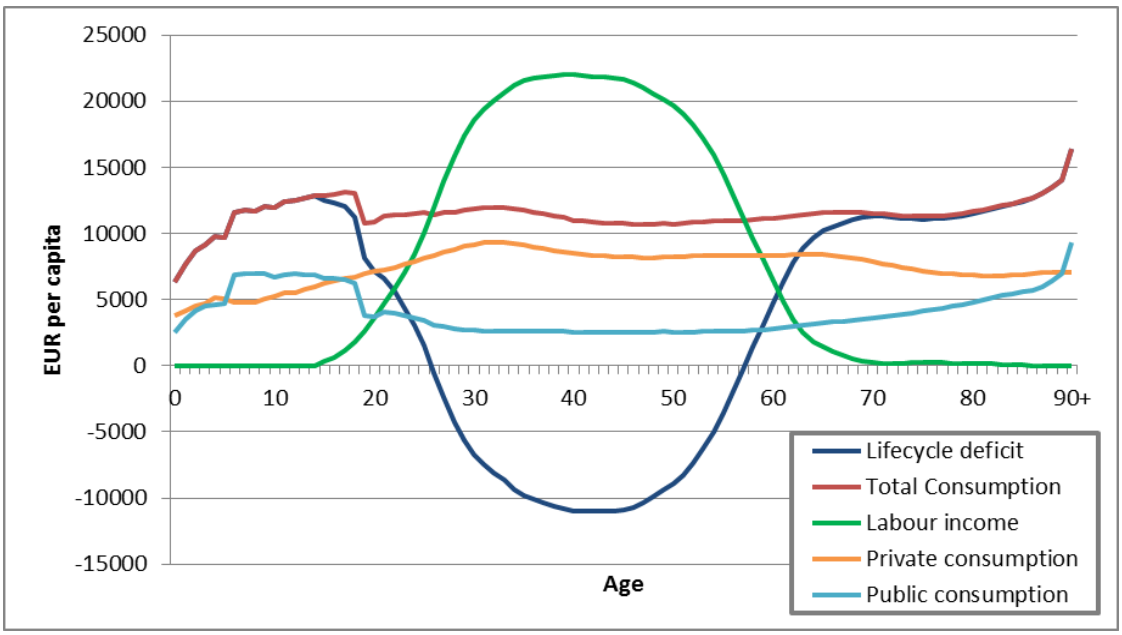
Figure 35 presents the lifecycle deficit and its components in 2010. LCD is the difference between total consumption and total labour income. As presented in Figure 5, labour income is an inverted U-shaped curve. On the other hand, there exists a relative stability of the total consumption profile over the ages in Slovenia. This can be explained by offsetting between public and private consumption. As a consequence of living in an egalitarian income distribution system, Slovenians are very sensitive to an increased income inequality. There exists a high state involvement in the economic system. Consequently, private and public consumption sum up to a relatively stable consumption over the ages (Sambt & Malačič, 2011, p. 340).

We can see a hump in the age profile of total consumption in the childhood period. Even though we impose the equivalence scale on other private consumption, which represents the main part of private consumption, the public education consumption is so high during childhood that the total consumption in this period exceeds the stable consumption in the following ages. This is actually characteristic of all rich contemporary societies, reflecting high human capital investments (Lee & Mason, 2011a, p. 82).

After the age of 20, total consumption becomes quite stable, also for older people. Stable old age consumption is characteristic of less developed contemporary countries. However, Slovenian population is old like in other developed countries. This rather stable consumption at old ages can result in a smaller number of old people living in their own household, compared to the rich countries (Lee & Mason, 2011a, p. 82).

Figure 35 shows that lifecycle surplus exists only between the ages 26 and 57 in 2010, meaning that for only 32 years individuals are able to finance their total consumption with their labour income. This is a striking result taking into account that life expectancy at birth in 2010 was about 80 years – 76.4 for males and 83.1 for females (Life expectancy at birth, by sex, 2014). LCD rises until the age of 14, then it starts to decrease as a consequence of positive labour income and lower total consumption. The LCD remains positive until the late 20s, when people start entering the labour market intensively. The lifecycle surplus during the working-ages changes into lifecycle deficit again in the late 50s. Lifecycle deficit rises until the early 70s when it stabilizes. In the late 80s it slightly increases again.

Figure 35. Smoothed age profiles of lifecycle deficit and its subcategories, Slovenia, 2010



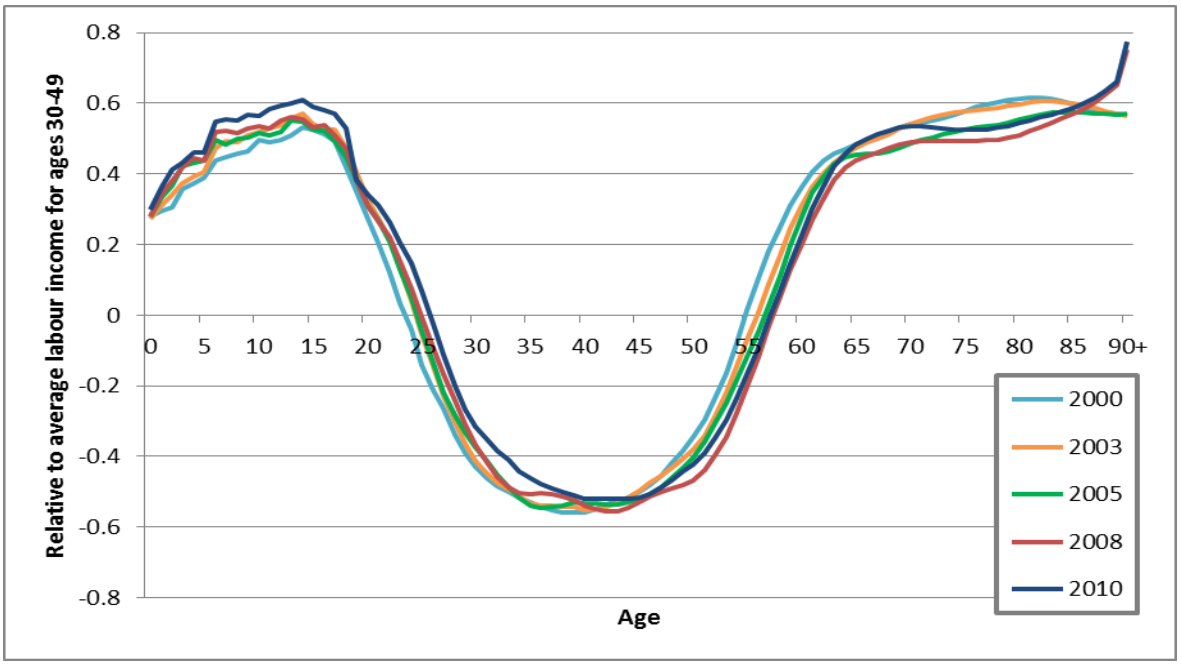
Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Figure 36 presents the evolution of the lifecycle deficit relative to the average labour income in the period of 2000–2010. The length of the lifecycle deficit is similar over the years. A short period of lifecycle surplus is characteristic of all the analysed years between 2000–2010, and it extends between the ages of 24 and 54 in 2000, between 25 and 55 in 2003, between 25 in 56 in 2005, between 25 and 57 in 2008, and between 26 and 57 in 2010. Labour income starts to exceed consumption later in life due to prolonged educational period. There exists a surplus of 31 years in 2000 and 2003 and 32 years in 2005 and 2010. Individuals are capable to cover their consumption for longer time in 2008, when surplus extends to 33 years. In their final years, people again become dependent on others. While in 2000, the period of dependency begins after the age of 54, in 2010, people start to rely on others again at the age of 57. Compared to other NTA countries, Slovenia has not only the shortest lifecycle surpluses among all European countries but also one of the shortest one in the world (Consumption and Labor Income Profiles Release, 2014; Prskawetz & Sambt, 2014).

According to the results from Figure 36 we can confirm our first hypothesis that in Slovenia, there exists a strong economic lifecycle at the individual level relative to the life expectancy at birth and compared to other countries in the entire 2000-2010 period. During childhood and at all ages, people consume more than they produce, therefore they depend on the working-age

population, which consumes less than it produces. People's production is higher than their consumption only for 31 years in 2000 and 2003, 32 years in 2005 and 2010 and 33 years in 2008.

Figure 36. Evolution of lifecycle deficit, Slovenia, 2000-2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

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5.2 The Financing of Consumption

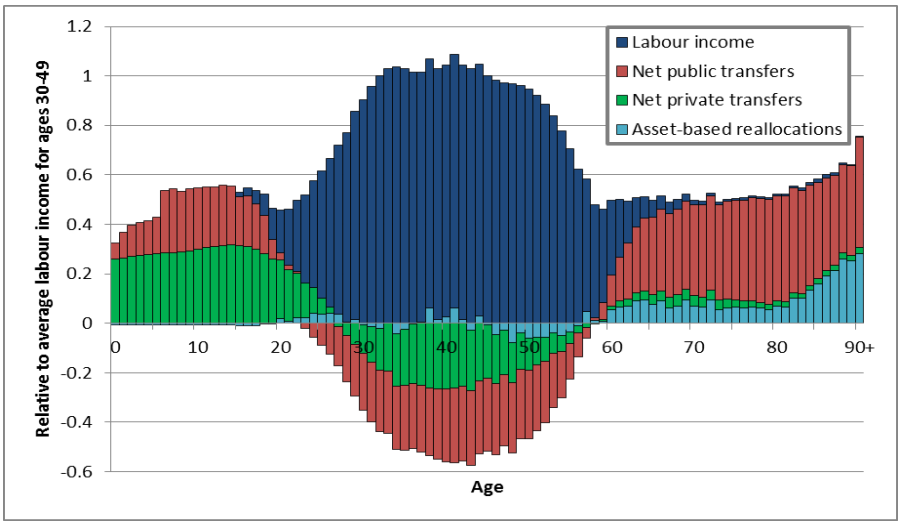
In continuation we present how consumption is financed over age and years. Consumption is financed through labour income, public and private transfers or asset-based reallocations.

Figure 37 shows the financing of consumption for Slovenia in 2010. In Slovenia, people rely mainly on public and private transfer systems. Net public transfers are positive during childhood and at old ages. While the elderly primary rely on public transfers, children mainly depend on private transfer inflows, especially on intra-household transfers that present a predominant part of private transfers. People at old ages receive only a small part of private transfer inflows. Therefore, private transfers in Slovenia, like in other countries, flow mainly downwards, from parents to children. On the other hand, net public transfers flow mainly upwards, from younger to older people. Public and private transfers are high enough to cover the main part of the lifecycle deficit; therefore, people in Slovenia mostly do not depend on asset-based reallocations. Asset-based reallocations are primarily upward and limited to older people.

Figure 37. The financing of consumption, Slovenia, 2010

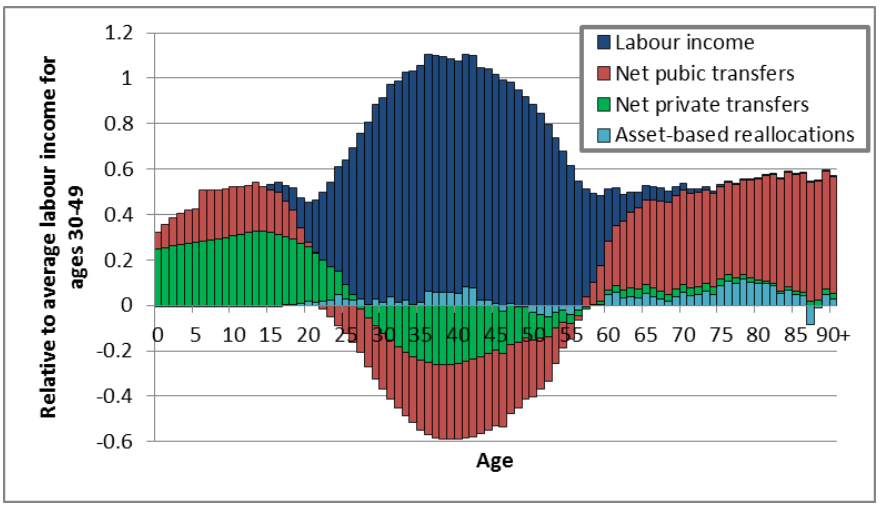
Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Figure 38. The financing of consumption, Slovenia, 2008



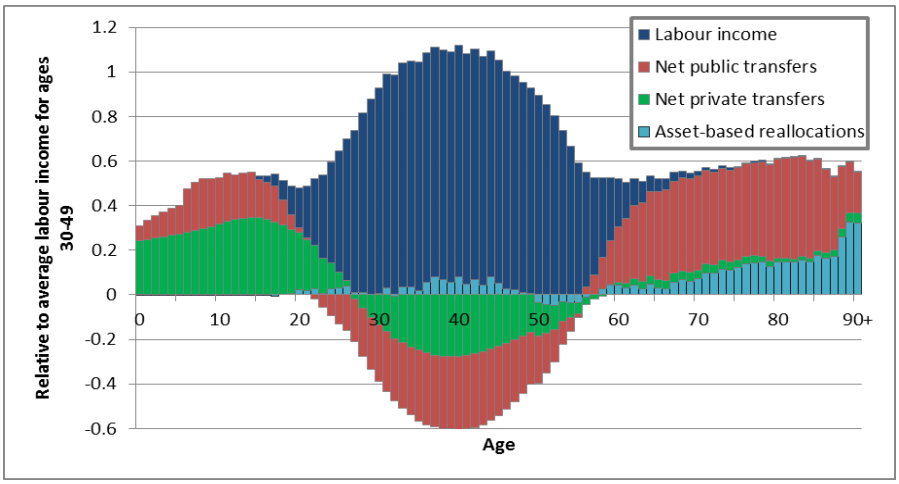
Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Figure 39. The financing of consumption, Slovenia, 2005



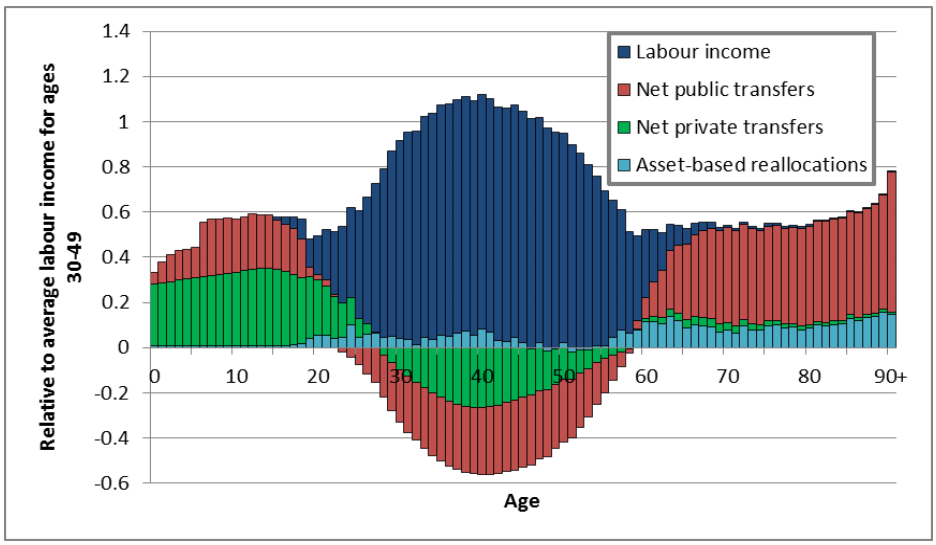
Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Figure 40. The financing of consumption, Slovenia, 2003



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Figure 41. The financing of consumption, Slovenia, 2000



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Figures 37-41 present the financing of the lifecycle deficit for Slovenia in the years between 2000 and 2010. We can see that in total the net public transfers present the main source of covering the lifecycle deficit in all the analysed years. This is especially true for older people where the public transfers are by far the most important source for financing their consumption. The public transfers flow predominantly upwards, from prime-age adults to the elderly. On the other hand, during childhood, private transfers are still the main source for financing the consumption of children. Private transfers predominantly flow downwards, from prime-age adults to their children. However, during the 2000–2010 period the share of public transfers relative to the private transfers for financing consumption of children is gradually increasing. The public sector continues to overtake the function of children care from the families – which is characteristic of the development process. Private transfer inflows to old people present a negligible part of total transfers to old people. Asset-based reallocations present a small part of reallocations over the years. Asset-based reallocations are mainly upward, received to cover the lifecycle deficit of older people. In 2003 and 2008, asset-based reallocations lift up in final years of life, as the result of increased asset income. Asset income in 2003 increased by expectations of higher efficiency after Slovenia enters the EU. In 2008 increased asset income results in high return on assets before the crisis.

The characteristics of different age groups change over time. Nowadays, young adults prolong their period of dependency, staying at school for a longer time, and therefore starting to work later. On the other hand, old people are capable to work longer time. Therefore, labour income

starts to rise later but it stays high for a longer time (Figure 6). With a shift in the labour income age profile, children and young adults depend on reallocations for longer time, while they are able to finance their consumption at older ages. Therefore the pattern of LCD changes over time, moving from the younger to the older (Figure 36). With a higher human capital investment and population aging people become increasingly dependent on the working-age population. Public transfers increase over time, mainly result in higher transfers to the children. Therefore we can confirm our second hypothesis; the patterns of labour income, consumption, transfers and asset-based reallocations have changed over time.

CONCLUSION

The main aim of the NTA methodology is to measure and analyse economic flows between different age groups. The economic flows are of great importance, because they reflect the fundamental feature of the economic lifecycle. During their life, people face two stages of economic dependency, when they are children and when they are old. Both age groups crucially depend on economic flows in the form of private or public transfers and asset-based reallocations. Consequently, intergenerational transfers are of main importance for the well-being of dependent groups. Working-age people are able to finance these transfers because their labour income exceeds their consumption.

The characteristics of young and old people change over time. In most countries people live longer than ever before. However, even though older people are nowadays able to work longer, they do not prolong their working-period accordingly. Rigidities on the labour market and especially characteristics of developed retirement systems do not stimulate rational older people to continue with work. On the other hand, children stay longer in education and therefore they enter the labour market late. The NTA can help us understand the basic responses of the changed age structure on the features of the economic lifecycle. Also, in most developed countries, the population age structure is changing rapidly. If we want to analyse the economic impacts of the changing age structure, we need to break down the data by age, i.e. we create age profiles.

The labour income age profile consists of earnings and self-employment labour income. The labour income age profile is, in all the years, an inverted U-shaped curve, driven by employment rates and wages. Between 2000 and 2010, labour income becomes higher for older workers, since younger people start to work later and old people work longer. On the other hand, consumption is always positive and relatively stable over all ages.

Based on the obtained NTA results for Slovenia we confirm our first hypothesis that in Slovenia, there exists a strong economic lifecycle at the individual level relative to the life expectancy at birth and compared to other countries in the entire 2000-2010 period. During childhood and at old ages, people consume more than they produce, therefore they crucially depend on the working-age population, who consumes less than it produces. People's labour income is higher than consumption only for 31 years in 2000 (between the ages of 24 and 54) and 2003 (between

the ages 25 and 55), 32 years in 2005 (between the ages 25 and 56) and 2010 (between the ages 26 and 57) and 33 years in 2008 (between the ages of 25 and 57).

Following the NTA methodology, we disaggregate consumption into private and public consumption. In Slovenia, private education and health consumption present only a small part of total private consumption; they are both predominantly financed by the public sector. The main part of private consumption is "other private consumption" (consumption on food, clothes, etc.). Private education consumption has risen over time. While private consumption does not change significantly over time, public consumption reflects changes in the age structure a lot. In Slovenia, the government has increased its human capital investments between 2000 and 2010. Even though the number of enrolled pupils in primary and secondary schools is falling, the total government education consumption at those educational levels rises over time. The increased tertiary education enrolment rate prolongs government expenditures on education. The government has increased expenditures on health over time, mainly due to a forceful rise in long term-care expenditures.

The lifecycle deficit in Slovenia is mainly covered by net public and private transfers; asset-based reallocations present only a small part of the financing. The age distribution of public cash transfers mainly depends on their largest component that is the pensions that old people receive. In recent years, people in Slovenia have started to retire later, shifting the age profile of pensions to the right. Old age pensions relative to the average labour income for the ages between 30-49 are always higher in 2010 than in the other years. While public transfers are received by young and old people, working-age population funds these inflows. While the main part of public transfer outflows is paid from labour income, the age profiles of public transfer outflows shift to the right over time.

Net transfers include net inter-household and net intra-household transfers. Working-age people are net beneficiaries and the elderly are net givers of inter-household transfers. While inter-household transfers in Slovenia present only a small part of total private transfers, intra-household transfers are very important for dependent age groups, especially children. Intra-household transfers flow mainly downwards, from adults to their children, whereas the old people receive only a small part of intra-household transfers. During 2000 and 2010 children stay dependent on their parents for longer time, on the other hand, adults are capable to outflow their surplus at older ages. However, during the 2000–2010 period the share of public transfers relative to the private transfers for financing consumption of children is gradually increasing. The public sector continues to overtake the function of children care from the families. Asset-based reallocations present only a small part of all reallocations. They flow mainly upwards and change over time especially due to expectations about efficiency on the market.

Therefore, comparing the National Transfer Accounts for the period between 2000-2010 enables us to confirm our second hypothesis that in Slovenia the patterns of labour income, consumption, transfers and asset-based reallocations have changed over that period.

SLOVENIAN SUMMARY

V svojem življenju gredo posamezniki skozi dve obdobji ekonomske odvisnosti: v času otroštva in proti koncu svojega življenja. V tem času trošijo več kot proizvedejo. Med obema obdobjema ekonomske odvisnosti je obdobje presežka proizvodnje nad potrošnjo. Razliko med potrošnjo in delovnim dohodkom v posamezni starosti imenujemo »primanjkljaj življenjskega cikla«. Primanjkljaj življenjskega cikla je pozitiven, kadar potrošnja presega delovni dohodek posameznika določene starosti. Ta primanjkljaj mora biti financiran z ekonomskimi tokovi, ki potekajo med posameznimi starostnimi skupinami. Tokove razdelimo na javne in zasebne neto transferje ter na javno in zasebno »prerazdelitev iz naslova sredstev« (angl. *asset-based reallocation*).

Transferji med posameznimi starostnimi skupinami so ključnega pomena za razvoj in blaginjo posameznikov v določeni družbi. Transferji, ki jih mladi in stari prejemajo od delovno aktivnih prebivalcev, so ključnega pomena za njihovo preživetje. Mlajša generacija prejema pretežno transferje v obliki zdravstvene oskrbe in izobraževanja. Na drugi strani prejemajo starejši pretežno transferje v obliki zdravstva, dolgotrajne oskrbe in pokojnin.

V zadnjih letih se starostna struktura evropskega prebivalstva močno spreminja. Zmanjšana stopnja rodnosti in umrljivosti ter prehajanje t. i. »*baby boom*« generacije v starostno skupino 65 + pomeni relativno povečanje števila starejših v celotnem prebivalstvu. Spremembe v starostni strukturi prebivalstva močno vplivajo na gospodarsko aktivnost določene države. Spremembe v starostni strukturi prebivalstva in njihov vpliv na gospodarsko dogajanje lahko analiziramo s pomočjo razporeditve ekonomskih agregatov med posamezne starostne skupine.

V zadnjem desetletju je metodologija na področju merjenja, modeliranja in ocenjevanja medgeneracijskih transferjev močno napredovala. V želji po sistematičnem in celovitem načinu merjenja in modeliranja ekonomskih tokov med različnimi generacijami so raziskovalci razvili t. i. metodologijo »računov nacionalnih transferjev« (angl. *National transfer accounts – NTA*).

Starostna struktura prebivalstva vpliva na velikost in smer medgeneracijskih transferjev, kar posledično vpliva na gospodarsko dogajanje v posamezni državi. Zato je glavni namen magistrskega dela celovito analizirati transferje med posameznimi starostnimi skupinami in primerjati njihovo evolucijo skozi čas. Namen je torej oceniti starostne profile v izbranih letih in jih med seboj primerjati.

V zgodnjih letih človekovega življenja in v starosti so posamezniki močno odvisni od transferjev, ki jih prejmejo od oseb v delovni starosti. Ekonomski razvoj podaljšuje obdobje človekove ekonomske odvisnosti. Mladi podaljšujejo obdobje izobraževanja in vse kasneje vstopajo na trg dela. Na drugi strani starejši kljub hitremu podaljševanju pričakovane življenjske dobe ne podaljšujejo ustrezno tudi delovne dobe. Hkrati se Slovenija v mednarodnih primerjavah izpostavlja kot država z zelo nizkimi stopnjami aktivnosti v starostnih razredih 55 - 64 let. Na podlagi teh argumentov postavljamo prvo hipotezo.

Hipoteza 1: V Sloveniji obstaja močan ekonomski življenjski cikel na ravni posameznika glede na življenjsko pričakovanje ob rojstvu in v primerjavi z drugimi državami, in to v celotnem preučevanem obdobju med leti 2000 in 2010.

V zadnjem desetletju se je starostna struktura prebivalstva močno spremenila. Sprememba v starostni strukturi povzroči spremembo v navadah potrošnikov, produktivnosti dela, udeležbi na trgu dela ter spreminja moč in smer ekonomskih tokov; zasebnih transferjev med gospodinjstvi oziroma znotraj gospodinjstev, javnih transferjev in zasebne ter javne prerazdelitve iz naslova sredstev. Daljše obdobje izobraževanja mladih pomeni njihov kasnejši vstop na trg dela. Z razvojem država oz. javni sektor vedno bolj prevzema nekatere funkcije družine. Na podlagi teh argumentov postavljamo našo drugo hipotezo.

Hipoteza 2: Vzorci gibanja delovnega dohodka, potrošnje, transferjev in prerazdelitve iz naslova sredstev se skozi čas spreminjajo.

Magistrsko delo je sestavljeno iz petih poglavij. V prvih dveh poglavjih predstavimo teoretično ozadje metodologije računov nacionalnih transferjev (NTA). V prvem poglavju predstavimo teorijo življenjskega cikla, motive za prerazdelitev ter smeri medgeneracijskih tokov. V drugem poglavju predstavimo temeljna načela metodologije računov nacionalnih transferjev. Zadnja tri poglavja predstavljajo ključni del magistrskega dela, empirično analizo. V teh treh poglavjih predstavimo agregatne vrednosti posameznih spremenljivk ter njihove starostne profile. Predstavimo uporabljeno metodologijo in potrebne podatkovne vire. V zadnjem poglavju analiziramo starostni profil primanjkljaja življenjskega cikla ter predstavimo načine, kako posamezniki financirajo svojo potrošnjo v posamezni starosti.

Računi nacionalnih transferjev temeljijo na različnih demografsko-ekonomskih teorijah, kot so neoklasična teorija rasti in Samuelsonova teorija prekrivajočih se generacij. Prvotne teorije, ki so v ekonomsko modeliranje vključevale demografijo, so temeljile na pretežno nerealističnih predpostavkah. Kasneje sta Arthur in McNicoll v modeliranje vnesla bolj realistične predpostavke, ki so omogočile lažje empirično povezovanje med ekonomskimi modeli in demografijo. Gre za model treh generacij, pri čemer ima vsak posameznik svojevrstno dolžino življenja. Na ta način je postalo mogoče transferje med posameznimi starostnimi skupinami tudi empirično preučevati.

Računi nacionalnih transferjev so povezani s teorijo življenjskega cikla. Skozi obdobje svojega življenja postajajo posamezniki bolj izkušeni in učinkoviti. Po zaključku izobraževanja vedno več posameznikov vstopa na trg dela. Delovni dohodek zaradi tega s starostjo nekaj časa raste. V višjih starostnih razredih lahko začne produktivnost upadati, kar lahko vodi do nižjih zaslužkov, predvsem pa se začnejo posamezniki sčasoma umikati s trga dela. Krivulja zaslužkov ima posledično obliko inverzne »u« krivulje. Umikanje je odvisno od koristnosti, ki jih delo oz. nedelo prinaša. Koristnost je odvisna od razmerja med posameznikovim časom, namenjenim za delo oziroma namenjenim za prosti čas. Mladi izbirajo med vstopom na trg dela in nadaljnjim investiranjem v izobraževanje. Na drugi strani se starejši odločajo med tem, ali bi ostali na trgu

dela ali bi se raje upokojili. V razvitih državah se starejši običajno upokojijo prej, kot bi bilo glede na njihovo delovno sposobnost potrebno.

Na ekonomski življenjski cikel poleg delovnega dohodka vpliva tudi posameznikova potrošnja. Hipoteza življenjskega cikla predpostavlja, da je celotna potrošnja posameznika določene starosti sorazmerna sedanji vrednosti prihodnjega življenjskega zaslužka. Hipoteza življenjskega cikla predpostavlja, da si posamezniki skozi življenje želijo ohraniti kar se da stabilno potrošnjo. V času aktivne dobe njihov dohodek presega potrošnjo, zato v tem času varčujejo. Varčujejo za čas, ko njihova potrošnja presega dohodek.

Na prvi pogled se zdi, da teorija življenjskega cikla ravno pojasnjuje koncept primanjkljaja življenjskega cikla. V resnici pa obstaja velika razlika med obema. Teorija življenjskega cikla spremlja posameznika skozi njegovo celotno življenje. Po drugi strani temelji koncept primanjkljaja življenjskega cikla, s katerim se ukvarjamo, na presečnih podatkih. Preučuje celotno prebivalstvo določene države v določenem koledarskem letu.

Obstajajo različni motivi ekonomskih tokov med generacijami. Ti so lahko prostovoljni ali določeni z zakoni. Zasebni transferji so večinoma prostovoljni, medtem ko so javni večinoma določeni z zakoni. Prvi motiv, ki spodbudi tok zasebnih transferjev, je t. i. altruistični motiv. V skladu z njim je koristnost staršev odvisna od njihove potrošnje ter hkrati tudi od velikosti potrošnje njihovih otrok. Dodatna koristnost, ki jo prinese potrošnja otrok, starše motivira k prenosu transferjev. Ker je popolni altruizem podvržen nerealističnim postavkam in s tem empirično ni značilen, se je v literaturi začel pojavljati t. i. nepopolni altruistični motiv (angl. *impure altruizem*). Gre za kombinacijo popolnega altruizma in egoističnega motiva, ki prinaša večjo koristnost zaradi večjega darovanja drugim posameznikom (angl. *joy-of-giving*).

Poleg altruizma se v literaturi največkrat pojavlja t. i. motiv izmenjave (angl. *exchange motive*). Tipični primer motiva izmenjave je skrb otrok za svoje stare starše v zameno za pridobitev zapuščine po njihovi smrti. Meja med obema skrajnostima, altruističnim motivom in motivom izmenjave, je tako imenovani demonstracijski učinek. Preko demonstracijskega učinka naj bi se otroci socializirali in sprejeli dejstvo, da morajo skrbeti za starejše.

V literaturi se mnogokrat pojavlja tudi t. i. naključni motiv (angl. *accidental motive*) za prerazdelitev. Zaradi tveganja, da bi dolgo živeli, ljudje previdnostno varčujejo. Ko oseba, ki varčuje, umre, se privarčevano premoženje prenese na potomce. Ta dediščina ni namerna, temveč je posledica naključnega dejavnika.

V nadaljevanju bomo predstavili smeri toka transferjev med generacijami. Kadar so trenutno živeče generacije prisiljene podpirati prihodnje generacije, jih podpirajo preko neto transferjev, ki tečejo »navzdol«, torej od starejših k mlajšim. Po drugi strani lahko tudi današnje generacije prisilijo prihodnje generacije, da jih podpirajo preko neto transferjev. V tem primeru govorimo o tokovih, ki tečejo »navzgor«, torej od mlajših k starejšim. Smeri toka transferjev lahko predstavimo z empiričnimi rezultati za 23 držav sveta. Gre tako za razvite države kot tudi države

v razvoju. V državah v razvoju neto medgeneracijski transferji tečejo praviloma navzdol, od starejših k mlajšim. V bolj razvitih ekonomijah tečejo neto medgeneracijski transferji praviloma navzgor, od mlajših k starejšim. Ta smer drži tudi za Slovenijo. Enotna značilnost sodobnih ekonomij je, da neto zasebni tokovi tečejo praviloma navzdol, torej od starejših k mlajšim. Za neto javne transferje to ne drži nujno. Smer toka neto javnih transferjev je odvisna od ekonomske razvitosti in regijskih značilnosti. V vseh evropskih državah javni transferji tečejo navzgor, kot posledica razvitih pokojninskih sistemov.

V nadaljevanju bomo predstavili temeljna načela metodologije računov nacionalnih transferjev. Njihov temeljni cilj je meriti in analizirati ekonomske tokove med posameznimi starostnimi skupinami oziroma generacijami. Računi nacionalnih transferjev pomenijo novo poglavje v že obstoječem sistemu nacionalnih računov (angl. *System of National Accounts*). Računi nacionalnih transferjev dodajo dimenzijo starosti v sistem nacionalnih računov. Osrednji del metodologije računov nacionalnih transferjev predstavlja primanjkljaj življenjskega cikla. Razlika med potrošnjo in delovnim dohodkom je krita ali z neto transferji ali preko prerazdelitve iz naslova sredstev. Neto transferji so lahko javni ali zasebni. Neto zasebni tokovi se delijo na tokove med gospodinjstvi in tokove znotraj gospodinjstva. Prerazdelitev iz naslova sredstev je prav tako lahko zasebna ali javna in predstavlja razliko med prihodki iz premoženja in varčevanjem. Računovodska identiteta računov nacionalnih transferjev torej sloni na preprostem pravilu, da morajo biti vsi prilivi (v obliki delovnega dohodka, priliva transferjev ali prihodka iz premoženja) enaki vsem odlivom (v obliki potrošnje, odliva transferjev ali varčevanja).

Osrednji del magistrskega dela predstavlja empirični del. V njem analiziramo ekonomske tokove med različnimi starostnimi skupinami. Z namenom analiziranja medgeneracijskih tokov je potrebno najprej oceniti starostne profile za veliko število ekonomskih kategorij. Starostni profili predstavljajo povprečne vrednosti spremenljivke po posameznih starostnih skupinah. V prvem koraku oblikovanja starostnih profilov moramo pridobiti agregatne vrednosti posameznih kategorij. Te so bodisi neposredno vzete iz sistema nacionalnih računov bodisi ustrezno izračunane. V naslednjem koraku razdelimo agregatno vrednost med posamezne starostne skupine. Pri tem uporabimo podatke iz Ankete o porabi gospodinjstev ter druge anketne ali administrativne podatkovne vire. Starostne profile prilagodimo za faktor prilagajanja (angl. *adjustment factor*) tako, da se starostni profili, pomnoženi s starostno strukturo prebivalstva, ujemajo z agregatnimi vrednostmi. Starostni profili, pridobljeni iz anketnih podatkov, so večinoma na koncu izglajeni. Na ta način zmanjšamo variabilnost starostnih profilov, ki so posledica slučajnih dejavnikov v vzorčnih podatkih.

Ekonomski cikel sestavljajo potrošnja, delovni dohodek in primanjkljaj življenjskega cikla, pri čemer je zadnji razlika med prvima dvema spremenljivkama. Ločeno ocenimo agregatno vrednost za javno in zasebno potrošnjo. Tako javno kot zasebno potrošnjo razdelimo na potrošnjo za izobraževanje, potrošnjo za zdravstvo in na ostalo potrošnjo (druga potrošnja, razen izdatkov za izobraževanje in zdravstvo). Agregatne vrednosti zasebne potrošnje vsebujejo potrošnjo finančnih in nefinančnih podjetij, gospodinjstev ter neprofitnih institucij, ki služijo gospodinjstvom. Javna potrošnja vsebuje potrošnjo splošne države.

Delovni dohodek je v skladu z računi nacionalnih transferjev mera proizvodnje. Delovni dohodek vsebuje zaslužke zaposlenih in zaslužke samozaposlenih oseb. Vsi prispevki zaposlenih in delodajalcev so del delovnega dohodka.

Primanjkljaj življenjskega cikla predstavlja razliko med potrošnjo in delovnim dohodkom. V kolikor je razlika pozitivna, govorimo o primanjkljaju; v kolikor je negativna, pa govorimo o presežku življenjskega cikla. Razliko med potrošnjo in delovnim dohodkom posamezniki krijejo preko javnih in zasebnih transferjev, preostanek pa iz javne in zasebne prerazdelitve iz naslova sredstev.

V Sloveniji se celoten primanjkljaj življenjskega cikla med leti 2000 in 2010 znatno spreminja. Najmanjša vrednost primanjkljaja celotnega življenjskega cikla kot odstotek bruto domačega proizvoda je v letu 2008, ko znaša 0,87 % bruto domačega proizvoda. Na drugi strani je primanjkljaj življenjskega cikla najvišji v letu 2010 in predstavlja 5,74 % bruto domačega proizvoda. V vseh analiziranih letih je zasebna potrošnja več kot dvakrat večja od javne. Če primerjamo vrednosti posameznih podskupin zasebne in javne potrošnje, ne zaznamo nikakršnega posebnega trenda skozi čas. Edina izjema je zasebna potrošnja za izobraževanje, ki se tekom preučevanega obdobja stalno povečuje. Potrošnja za izobraževanje in zdravstvo predstavlja le majhen del celotne zasebne potrošnje. Pretežni del zasebne potrošnje predstavlja ostala zasebna potrošnja. Gre za potrošnjo v obliki hrane in pijače, nakupa oblek, stroškov prevoza itd. V nasprotju z zasebno potrošnjo predstavljajo izdatki za izobraževanje in zdravstvo v javni potrošnji večinski del. Iz agregatnih vrednosti je na drugi strani razvidno, da dohodek samozaposlenih kot odstotek bruto domačega proizvoda upada skozi čas.

Enega izmed možnih načinov financiranja primanjkljaja življenjskega cikla predstavljajo zasebni in javni neto transferji. Javne transferje delimo na javno potrošnjo in javne tekoče transferje. Javna potrošnja predstavlja prilive za posameznika, in sicer v obliki dobrin in storitev, prejetih neposredno s strani države. Na drugi strani lahko posamezniki prejmejo od države transferje v denarni obliki. Neto javni transferji predstavljajo razliko med prilivi in odlivi javnih transferjev. Odlivi javnih transferjev predstavljajo davke, socialne prispevke in ostale davke, ki jih plačujejo posamezniki. Javni tekoči transferji so v skladu z računi nacionalnih transferjev razdeljeni na transferje za izobraževanje, zdravstvo, pokojnine, brezposelnost in druge transferje, ki jih prejemajo posamezniki. Agregatne vrednosti kažejo, da je javna potrošnja (torej kar prejemajo posamezniki v nedenarni obliki) v vseh letih večja od javnih transferjev v denarni obliki.

Kot že omenjeno, delimo zasebne transferje na transferje med gospodinjstvi in transferje znotraj gospodinjstva. Transferji med gospodinjstvi predstavljajo neposredne transferje med gospodinjstvi in posredne transferje, posredovane s strani neprofitnih institucij, ki služijo gospodinjstvom. Medtem ko lahko agregatno vrednost neto transferjev med gospodinjstvi pridobimo iz sistema nacionalnih računov, lahko agregatno vrednost transferjev znotraj gospodinjstev pridobimo zgolj kot ostanek razlike med zasebno potrošnjo in razpoložljivim dohodkom.

Razliko med potrošnjo in delovnim dohodkom posameznikov določene starostne skupine lahko krijemo tudi s prerazdelitvijo iz naslova sredstev. Ta prikazuje razliko med prihodki iz premoženja in varčevanjem. Prihodki iz premoženja so sestavljeni iz prihodkov iz kapitala in prihodkov iz lastnine.

V nadaljevanju predstavljamo glavni del magistrskega dela, in sicer starostne profile za različne spremenljivke, hkrati pa tudi metodologijo in podatke, ki so bili pri tem uporabljeni. Rezultati so pri vseh relevantnih spremenljivkah predstavljeni ločeno za leto 2010, in sicer z namenom, da prikažemo povprečne vrednosti posameznih kategorij po starosti tudi v denarni obliki (EUR na prebivalca). Na drugi strani predstavimo tudi evolucijo spremenljivk po posameznih starostnih skupinah med leti 2000 in 2010, vsakič relativno glede na povprečni dohodek iz dela v starosti 30 - 49 let.

Predstavljeni starostni profili segajo od starosti 0 do starosti 90 +. Zgornja meja starosti 90 + je postavljena zaradi premajhnega števila oseb, starejših od 90 let, v anketah, ki predstavljajo glavni podatkovni vir za oblikovanje starostnih profilov. Za oblikovanje starostnih profilov so poleg podatkov iz Ankete o porabi gospodinjstev uporabljeni tudi podatkovni viri Ministrstva za finance, Zavoda za invalidsko in pokojninsko zavarovanje in Zavoda za zdravstveno zavarovanje Slovenije.

Starostni profil delovnega dohodka je sestavljen iz starostnega profila zaslužkov zaposlenih in starostnega profila zaslužkov samozaposlenih oseb. Starostni profil zaslužkov zaposlenih oseb je izračunan kot tehtano povprečje dohodkovnih skupin, ki predstavljajo del zaslužkov in so poročane v Anketi o uporabi gospodinjstev. Glavna kategorija zaslužkov so neto plače. Hkrati vsebujejo zaslužki zaposlenih tudi dodatek za prevoz na delovno mesto, dodatek za prehrano, dohodke študentov, dohodke iz avtorskih pogodb, neposredna plačila in dohodke iz pogodbe o delu. Starostni profil zaslužkov zaposlenih iz leta 2010 predstavlja inverzno »u« krivuljo. Zaslužki zaposlenih rastejo od 15. leta starosti dalje kot posledica vstopanja na trg dela in hkrati povečevanja delovne učinkovitosti. Zaslužki zaposlenih so najvišji okrog 38. leta starosti, potem začnejo upadati.

V kolikor želimo primerjati starostne profile med leti, jih moramo ustrezno normalizirati. Starostne profile normaliziramo tako, da jih delimo s povprečnim delovnim dohodkom oseb med 30. in 49. letom starosti. Na ta način iz starostnih profilov izločimo vpliv spreminjanja ravni posameznih kategorij zaradi gospodarske rasti. Delovni dohodek je izbran zato, ker je osrednja kategorija v NTA. Starostna skupina 30 - 49 je izbrana zato, da v mednarodnih primerjavah ni odvisna od hitrejšega ali poznejšega vstopanja in izstopanja na/iz trga dela.

V kolikor primerjamo relativne starostne profile med posameznimi leti 2000 in 2010, ugotovimo, da se razporeditev zaslužkov zaposlenih po starostnih skupinah pomika v višje starostne razrede. Gre za rezultat poznejšega vstopanja mladih na trg dela, hkrati pa starejši delajo dlje. Poznejše vstopanje mladih na trg dela je posledica povečevanja deleža mladih, ki gredo študirat, in

podaljševanja števila let študija, oboje pa je med drugim tudi posledica ugodnosti, ki jih slovenski študentje dobijo od države.

Starostni profil dohodka samozaposlenih oseb ima prav tako obliko inverzne »u« krivulje. Dohodek samozaposlenih začne naraščati v 18. letu starosti in doseže vrh v 45. letu starosti, pozitiven pa je tudi še v starosti, ko se posamezniki upokojijo. Dohodek samozaposlenih oseb v času upada, kot posledica zmanjševanja agregatne vrednosti te kategorije v času.

V kolikor primerjamo starostna profila zaslužkov zaposlenih in samozaposlenih oseb vidimo, da v letu 2010 doseže dohodek samozaposlenih oseb svoj vrh kasneje kot zaslužek zaposlenih oseb. Ker zaslužki zaposlenih predstavljajo večinski del celotnega delovnega dohodka, je prerazporeditev celotnega dohodka med posameznimi starostnimi skupinami zelo podobna prerazporeditvi zaslužkov zaposlenih med posameznimi starostnimi skupinami.

Naslednji starostni profil, ki ga potrebujemo v skladu z metodologijo računov nacionalnih transferjev, je starostni profil zasebne potrošnje. Anketni podatki ne vsebujejo podatkov o izdatkih za izobraževanje, zdravstvo ter drugih dobrin in storitev na individualni ravni, ampak zgolj na ravni gospodinjstva. Na ta način porabe posameznikov ne moremo izračunati neposredno. Za prerazporeditev celotne potrošnje določenega gospodinjstva po starosti vpeljemo različna pravila razporejanja potrošnje.

V kolikor želimo prerazporediti zasebno potrošnjo za izobraževanje, uporabimo robustno regresijsko funkcijo. V letu 2010 so zasebni izdatki za izobraževanje najvišji v času pred vstopom v osnovno šolo. Ko otroci zaključijo z vrtcem, izdatki za izobraževanje močno upadejo. Izobraževanje je v času osnovne in srednje šole ter v času univerzitetnega izobraževanja pretežno financirano s strani javnega sektorja. Taka oblika starostnega profila je značilna za vsa leta med 2000 in 2010. V tem času potrošnja za izobraževanje narašča. Starostni profil za zasebno zdravstvo je prav tako izračunan s pomočjo regresijske metode. Iz starostnega profila za leto 2010 so razvidni visoki izdatki za zdravstvo pri novorojenčkih. V višjih starostnih razredih je poraba za zdravstvo precej stabilna, po 60. letu starosti rahlo narašča.

Ostalo zasebno potrošnjo prerazporedimo med posameznike z uporabo *ad hoc* metode razporejanja, to je z uporabo ekvivalenčne lestvice. Ostala zasebna potrošnja predstavlja glavni del celotne zasebne potrošnje in je sestavljena iz potrošnje pripisanih najemnin ter ostale potrošnje – tiste, ki ne vsebuje porabe za izobraževanje, zdravstvo in pripisane najemnine. Starostni profil pripisanih najemnin je ocenjen preko potrošnje gospodinjstev za dejanske najemnine v Anketi o porabi gospodinjstev. Starostni profil celotne zasebne potrošnje ima podobno obliko kot starostni profil »ostale zasebne potrošnje«, ki predstavlja izdatke za oblačila, hrano, prevoz, dejanske najemnine itd. in predstavlja največji del celotne zasebne potrošnje. V letu 2010 zasebna potrošnja raste do 30. leta starosti in je nato v glavnem stabilna do konca življenja.

Javna potrošnja je prav tako kot zasebna sestavljena iz izdatkov za izobraževanje, zdravstvo in ostalo potrošnjo. Anketa o porabi gospodinjstev ne vsebuje podatkov o javni potrošnji, zato so starostni profili ocenjeni preko različnih administrativnih virov podatkov. Z namenom, da oblikujemo starostni profil za izobraževanje, smo celotne javne izdatke po posameznih ravneh izobrazbe razporedili na posamezne starostne razrede s pomočjo podatkov o številu vpisanih v posamezne ravni izobraževanja. V letu 2010 izdatki za izobraževanje močno narastejo v starosti, ko otroci hodijo v vrtec. Potem se izdatki pretežno stabilizirajo v starosti, ko posamezniki obiskujejo osnovno in srednjo šolo. V času univerzitetnega izobraževanja začnejo izdatki močno upadati, kar je v veliki meri tudi rezultat manjše stopnje vpisa v izobraževanje v primerjavi z osnovno in srednjo šolo. V kolikor primerjamo javno potrošnjo za izobraževanje skozi leta, ugotovimo, da skozi leta narašča. V letu 2010 je skoraj za vsa leta starosti višja kot v preostalih letih, kar pa je tudi posledica krize (upad dohodka iz dela, s katerim rezultate primerjamo).

V skladu z računi nacionalnih transferjev vključuje javna potrošnja za zdravstvo poleg izdatkov za zdravstvo tudi izdatke za dolgotrajno oskrbo. Za ocenitev starostnih profilov za javno zdravstvo smo uporabili interne podatke Evropske komisije. V letu 2010 javna potrošnja za zdravstvo močno presega zasebno. Do konca 50. leta starosti je pretežno stabilna, potem začne močno naraščati kot rezultat visokih izdatkov za zdravstvo in predvsem za dolgotrajno oskrbo, še posebej v najvišjih starostnih razredih.

Ostali del javne potrošnje, ki ni namenjen zdravstvu in izobraževanju, je pretežno sestavljen iz kolektivne potrošnje, kot so npr. obramba države, policija, delovanje državnih institucij. Kolektivna potrošnja je enakomerno prerazporejena med različne starostne skupine. Starostni profil celotne javne potrošnje ima dva vrhova. Prvega v času otroštva kot rezultat visoke javne potrošnje za izobraževanje in drugega v času starosti kot rezultat visoke javne porabe za zdravstvo. Delovna populacija je pretežno tarča kolektivne potrošnje.

Javni transferji v denarni obliki so neposredni prejemki posameznikov s strani države. Delimo jih na različne podkategorije, v odvisnosti od tega, kdo je njihov prejemnik. Glavne tri kategorije, ki predstavljajo največji delež celotnih javnih transferjev v denarni obliki, so izdatki za pokojnine, družinski prejemki in starševska nadomestila ter transferji iz naslova boleznin. Pokojnine predstavljajo večino javnih tekočih transferjev, in sicer kar 64,5 %. Ker predstavljajo transferji v denarni obliki neposredne prejemke za posameznika, so del Ankete o porabi v gospodinjstvih. Iz starostnega profila za pokojnine iz leta 2010 je razvidno, da so zelo nizke do konca 40. let starosti. Potem začnejo močno naraščati in dosežejo vrh v poznih 60. letih starosti, ko se večina posameznikov upokoji. V letu 2010 predstavljajo drugo najpomembnejšo kategorijo tekočih javnih transferjev družinski prejemki in starševska nadomestila. Starostni profil iz leta 2010 kaže, da so dohodki na posameznika iz tega naslova najvišji okrog 34. leta starosti. Precej visoka vrednost družinskih prejemkov in starševskih nadomestil je razpotegnjena med poznimi 20. leti starosti in sredino 40. let. Gre za obdobje z največjo verjetnostjo starševstva. V kolikor primerjamo starostne profile pokojnin v času, vidimo, da se ljudje začenjajo vedno kasneje upokojevati. Hkrati v opazovanem obdobju izdatki za pokojnine v višjih letih starosti naraščajo.

Odlivi javnih transferjev so sestavljeni iz plačanih davkov, socialnih prispevkov in ostalih davkov, ki jih plačujejo posamezniki. Starostni profili za javne odlive transferjev so ocenjeni na podlagi že obstoječih starostnih profilov. Starostni profil socialnih prispevkov je ocenjen iz starostnega profila delovnega dohodka. Starostni profil javnih odlivov transferjev iz leta 2010 ima vrh v času aktivne delovne dobe. Starostni profil celotnih javnih odlivov ima namreč podobno obliko kot starostni profil socialnih prispevkov, ki se med vsem podskupinami javnih odlivov transferjev po starosti najbolj razlikujejo. Tako otroci kot starejši plačujejo davke na potrošnjo dobrin in storitev. Davki, ki jih plačujejo otroci, so financirani s pomočjo privatnih transferjev od staršev k otrokom. Starejši poleg tega plačujejo tudi davke na dohodek iz premoženja; ti poskočijo v letih 2003, 2008 in 2010. Starostni profil javnih odlivov se v času pomika k starejšim, kot posledica kasnejšega zaposlovanja mladih in daljšega ostajanja starejših na trgu dela. Neto javni transferji predstavljajo razliko med prilivi in odlivi javnih transferjev. V obdobju otroštva in v višjih starostnih razredih so pozitivni, v času aktivne dobe pa negativni.

Transferji med gospodinjstvi kot del celotnih zasebnih transferjev tečejo od oziroma h glavi gospodinjstva (angl. *household head*). Starostni profili transferjev med gospodinjstvi so ocenjeni na podlagi anketnih podatkov. Prejemniki transferjev med gospodinjstvi so pretežno odrasli v začetku 30. leta starosti. Odlivi transferjev med gospodinjstvi v letu 2010 rastejo po 18. letu starosti, v 40. letu starosti se stabilizirajo in začenjajo rasti po 70. letu starosti. Razlika oz. neto transferji med gospodinjstvi so zato naraščajoči do 30. leta starosti, po tem letu pa začnejo upadati in postanejo negativni v sredini 60. let. Starejši so tako neto plačniki transferjev med gospodinjstvi, medtem ko so mlajši odrasli neto prejemniki.

Daleč največji del zasebnih transferjev pa predstavljajo transferji znotraj gospodinjstva. Starostni profili transferjev znotraj gospodinjstva so izračunani kot ostanek med zasebno potrošnjo posameznikov in njihovim razpoložljivim dohodkom. Posamezniki, katerih razpoložljivi dohodek ni dovolj visok za pokritje potrošnje, so tarča prilivov transferjev znotraj gospodinjstva. Tisti posamezniki, katerih razpoložljivi dohodek presega potrošnjo, generirajo tok v obliki odliva. V letu 2010 so neto transferji znotraj gospodinjstva najvišji v času otroštva. Naraščajo do polnoletnosti, potem začnejo upadati. Neto transferji znotraj gospodinjstva so negativni v času delovne dobe in postanejo rahlo pozitivni v 60. letu starosti. Med leti 2000 in 2010 se starostni profil neto transferjev znotraj gospodinjstev pomika v desno. To nakazuje na podaljševanje obdobja odvisnosti mladih od svojih staršev, hkrati pa podaljševanje obdobja, ko so se starejši sposobni sami financirati.

V letu 2010 je primanjkljaj življenjskega cikla kot razlika med celotno potrošnjo in celotnim prihodkom negativen zgolj med 26. in 57. letom starosti. To pomeni, da posamezniki ustvarijo s svojim dohodkom iz dela dovolj za financiranje svoje potrošnje zgolj v tem razponu 32. let. Ob tem je znašalo v letu 2010 življenjsko pričakovanje ob rojstvu 76,4 let za moške in 83,1 let za ženske. V ostalih preučevanih letih traja primanjkljaj življenjskega cikla 31 let v letih 2000 (med 24. in 54. letom starosti) in 2003 (med 25. in 55. letom starosti), 32 let v letu 2005 (med 25. in 56. letom starosti) ter 33 let v letu 2008 (med 25. in 57. letom starosti). V vseh preostalih letih starosti so posamezniki odvisni od drugih, saj njihova potrošnja presega delovni dohodek. V

primerjavi z drugimi državami, s prav tako izdelanimi računi nacionalnih transferjev, je interval presežka življenjskega cikla v Sloveniji najkrajši med vsemi evropskimi državami in hkrati eden najkrajših na svetu. Na podlagi teh rezultatov lahko potrdimo našo prvo hipotezo, da v Sloveniji obstaja močan ekonomski življenjski cikel na ravni posameznika glede na življenjsko pričakovanje ob rojstvu in v primerjavi z drugimi državami, in to v celotnem preučevanem obdobju med leti 2000 in 2010.

V letu 2010 so posamezniki večinoma financirali svojo potrošnjo preko javnih in zasebnih transferjev, medtem ko prerazdelitev iz naslova sredstev predstavlja zgolj majhen delež financiranja potrošnje posameznikov. Otroci so predvsem odvisni od zasebnih transferjev, medtem ko so starejši pretežno odvisni od javnih transferjev. Starejši prejemajo zgolj majhen delež zasebnih transferjev. Medtem ko zasebni transferji v letu 2010 tečejo pretežno navzdol (od starejših k mlajšim), javni transferji potekajo pretežno navzgor (od mlajših k starejšim). V vseh preučevanih letih med 2000 in 2010 predstavljajo neto javni transferji glavni vir financiranja primanjkljaja življenjskega cikla. V tem časovnem obdobju se delež financiranja potrošnje mladih skozi javne transferje povečuje. Javni sektor na ta način prevzema skrb za mlade. Prerazdelitev iz naslova sredstev v vseh preučevanih letih poteka navzgor in na ta način financira potrošnjo starejših. V letih 2003 in 2008 ta oblika prerazdelitve iz naslova sredstev močno poraste v zadnjih letih življenja. Na podlagi navedenega lahko potrdimo našo drugo hipotezo, da se vzorec delovnega dohodka, potrošnje, transferjev in prerazdelitve iz naslova sredstev v času spreminja.

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APPENDIXES

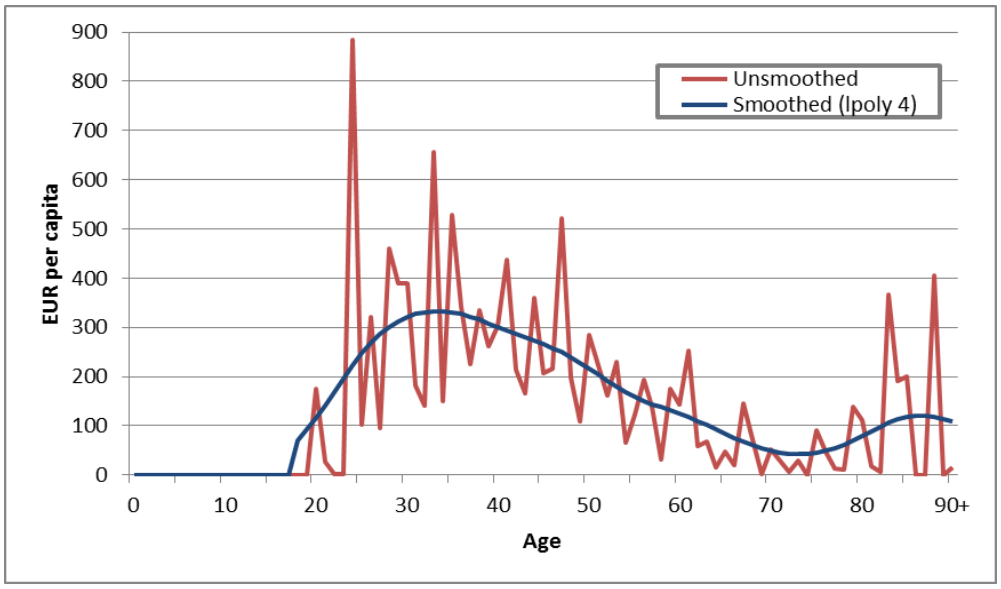
TABLE OF APPENDIXES

Appendix A: List of abbreviations

COFOG Classification of Individual Consumption by Purpose
COICOP Classification of Individual Consumption by Purpose
COICOP-HBS Classification of Individual Consumption by Purpose-the Household Budget Survey
ESSPROS European System of Integrated Social Protection Statistics
EU European Union
EUR Euros
GDP Gross Domestic Product
HES Household Expenditure Survey
ISCED International Standard Classification of Education
LCD Lifecycle deficit
NTA National Transfer Accounts
NPISH Non-profit institutions serving households
RAG Public asset-based reallocations
ROW The rest of the world
SNA System of National Accounts
SORS Statistical Office of the Republic of Slovenia
UNESCO United Nations Educational, Scientific and Cultural Organization

Appendix B: Age profiles of private inter-household transfer inflows

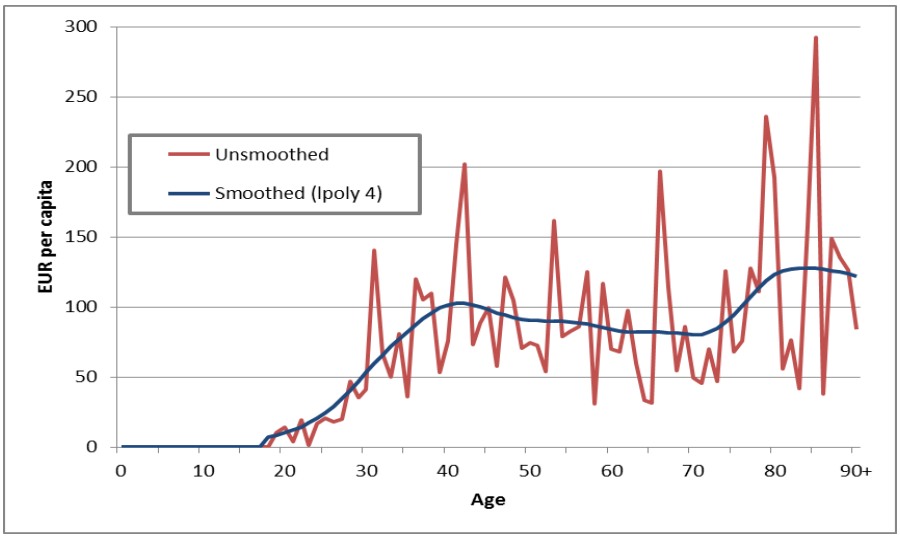
Figure A-1. Unsmoothed and smoothed age profiles of private inter-household transfer inflows, Slovenia, 2010



Source: *Eurostat, Non-financial transactions, 2014; Statistical Office of the Republic of Slovenia Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On ‑demand micro data, 2014.*

Appendix C: Age profiles of private inter-household transfer outflows

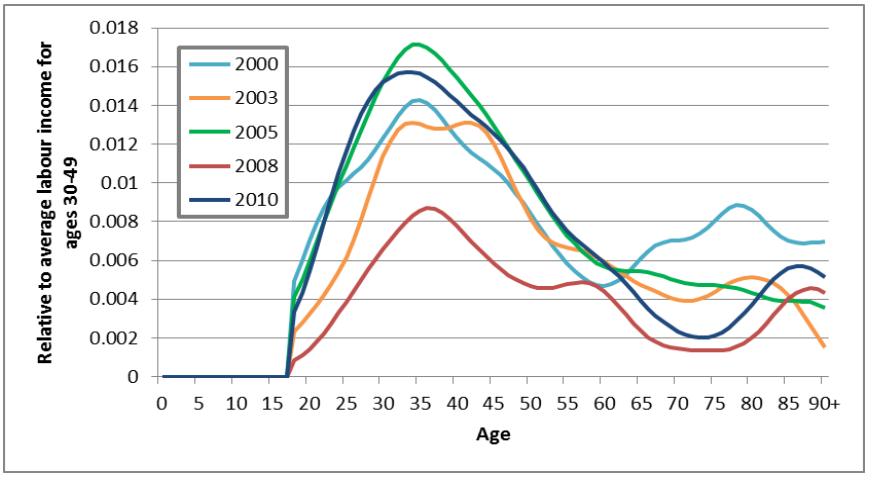
Figure A-2. Unsmoothed and smoothed age profiles of private inter-household transfer outflows, Slovenia, 2010



Source: *Eurostat, Non-financial transactions, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On ‑demand micro data, 2014.*

Appendix D: Evolution of private inter-household transfer inflows

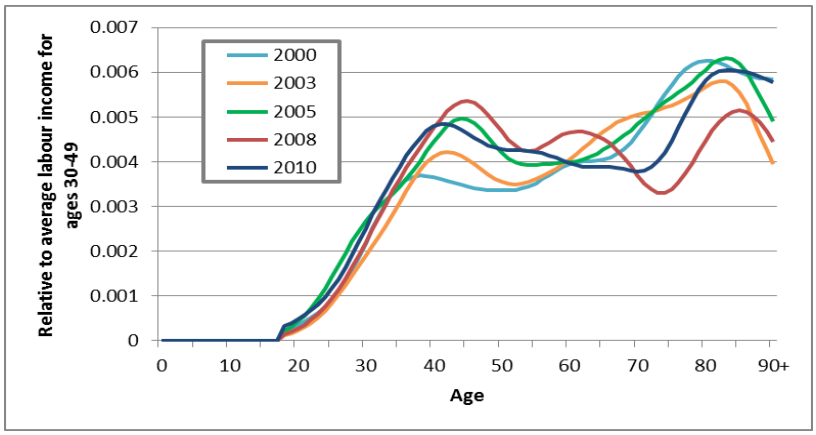
Figure A-3. Evolution of private inter-household transfer inflows, Slovenia, 2000-2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On ‑demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Appendix E: Evolution of private inter-household transfer outflows

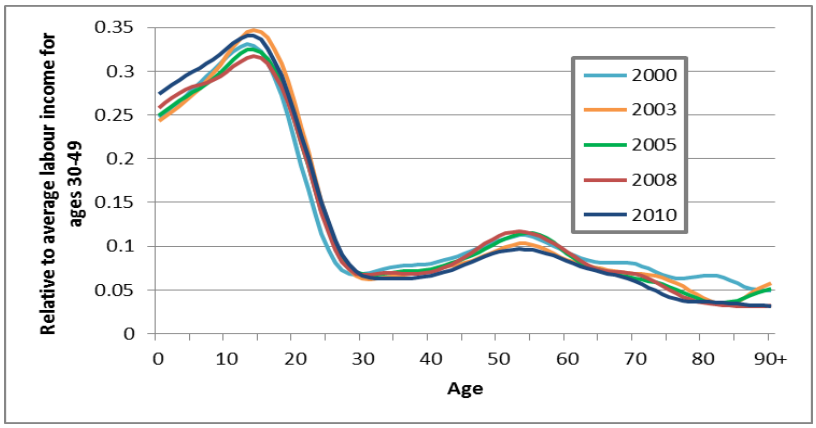
Figure A-4. Evolution of private inter-household transfer outflows, Slovenia, 2000-2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Appendix F: Evolution of private intra-household transfer inflows

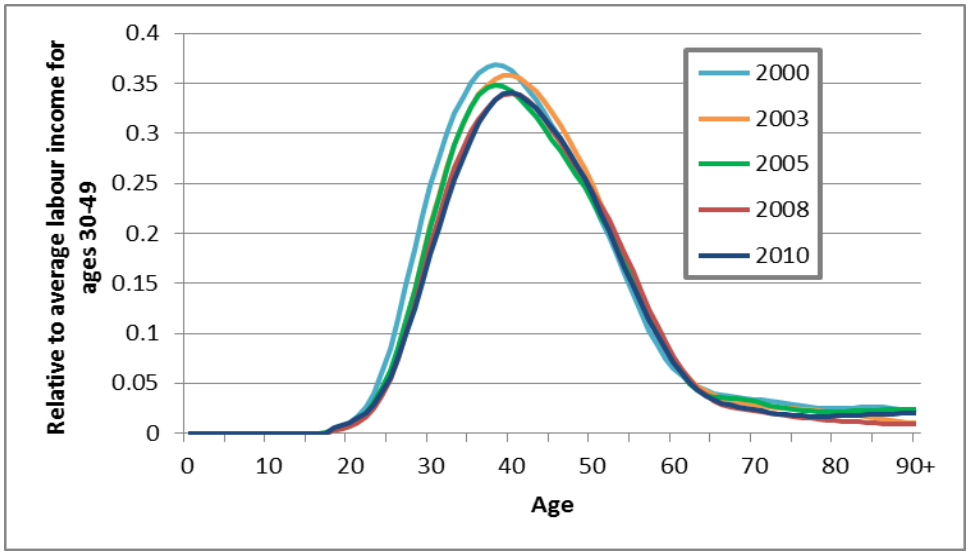
Figure A-5. Evolution of private intra-household transfer inflows, Slovenia, 2000-2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On -demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*

Appendix G: Evolution of private intra-household transfer outflows

Figure A-6. Evolution of private intra-household transfer outflows, Slovenia, 2000-2010



Source: *European Commission, 2012 Ageing report. Economic and budgetary projection for the 27 EU member states 2010-2060 (internal data), 2012; Eurostat, Final consumption expenditure of households by consumption purpose, 2014; Eurostat, General government expenditure by function, 2014; Eurostat, Non-financial transactions, 2014; Eurostat, Social protection expenditure-Tables by benefits, by function, 2014; Eurostat, Students by ISCED level, age and sex, 2014; J. Sambt, National Transfer Accounts for Slovenia, 2009, p. 66, Figure 14; Statistical Office of the Republic of Slovenia, Konsolidirana globalna bilanca javnega financiranja, 2014; Statistical Office of the Republic of Slovenia, Household Expenditure Survey for years 2000, 2003, 2005, 2008 and 2010: On-demand micro data, 2014; Expenditure on education as % of total government expenditure, 2014.*