

Welfare state and the inter-generational redistribution of public and private consumption¹

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Abstract:

In the paper we propose the quantitative assessment of the intergenerational distribution of public and private consumption between education, health and other items in the EU countries. We use the National Transfer Account age profiles of consumption to assess the level of consumption of three generations divided by age groups: 0-19, 20-64 and 65 and over.

This analytical approach aims to provide additional evidence on similarities and differences in public and private consumption from the intergenerational perspective. As a result, we can assess, whether welfare state outcomes on consumption by young, prime age and senior generations differ across types of welfare state.

Our results indicate that public consumption is targeted mainly towards the young and the senior generations, complimenting private consumption that is higher for the prime age generation.

Without taking into account pension transfers, there is a group of countries that directs highest share of the public consumption towards the young generation (most importantly for education purposes). However, if we add the pension transfers, the public consumption with pensions is mainly addressed to the senior generation.

Our results indicate that projected changes in the age structure of the European populations will have a significant impact on the rising pressure to increase the level of the public consumption.

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1. Introduction

The literature on welfare regimes in Europe attempts to describe and explain similarities and differences in various welfare regimes constituting the European Social Model. The first proposal of the welfare states typology by (Esping-Andersen, 1990) was followed by a debate in the literature that further discussed and developed the initially proposed typology by including Southern countries (Ferrara, 1997) and CEE countries (Cerami & Vanhuysse (eds.), 2009). Arts & Gelissen (2002) provide a summary of the debate and further research on this topic.

Most of studies on welfare states is based on the mix of qualitative and quantitative measures. The existing literature is based on the available macro data using methods such as cluster analysis, principal component analysis or factor analysis. Recent work of (Kammer, Niehues, & Peichl, 2012) extends the up-to-date literature by using micro data from EU-SILC. They analyse welfare instruments (taxes, benefits, social insurance contributions and pensions) to identify welfare state types.

2. Data and method

In the paper we expand the quantitative evidence supporting the understanding of the welfare regimes in the EU countries. We apply the National Transfer Accounts (NTA) method as developed by Lee and Mason (see for example (R Lee & Mason, 2011; R Lee, 2013; Ronald Lee & Mason, 2011)). The use of NTA profiles combines the macro and micro-data based approaches used in the literature, contributing to the debate on the welfare regimes and their evolution. At the moment our analysis covers 10 EU states. In the analysis we intend to include all EU countries, covering the CEE region being under-investigated in the research on welfare state regimes. This allows identifying whether there is a distinct Central and Eastern European model, or there are similarities between old and new member states with regards to their welfare state regimes.

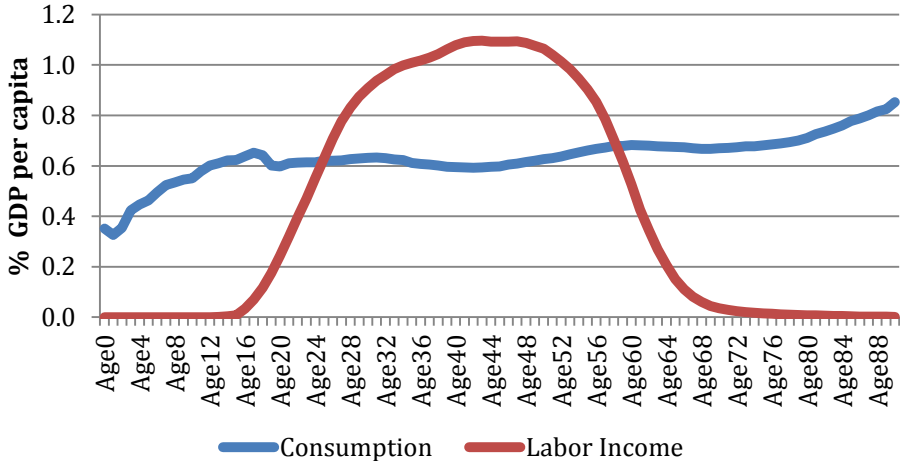
The National Transfer Accounts (NTA) is a system to measure economic flows across age groups in a manner consistent with the National Income and Product Accounts. The accounts measure how each age group produces, consumes, shares, and saves resources. Two forms of economic flows are distinguished: transfers between age groups and the use of assets accumulated earlier in life. These flows arise primarily because of a fundamental feature of the economic life cycle: children and the elderly consume more than they produce through their labour. The NTA provides estimates of the components of the economic life cycle and the inter-age flows that inevitably arise. These flows occur through government programs and through families and other private institutions.

The National Transfer Accounts provide estimates to study the evolution of intergenerational transfer systems; the consequences of alternative approaches to age reallocations embodied in public policy with respect to pensions, health care, education and social institutions, e.g., the extended family. As a result, it allows identifying social, political, and economic implications of population ageing, particularly in the context of inter-generational solidarity.

In the paper, we look into the distribution of consumption by generation, including public and private consumption, both aggregated as well as divided into three main groups: for education, health and other consumption. In order to identify the generational distribution we divide the population into three generations: the young (0-19 years); adult (20-64) and senior generations (65 and over). In the analysis we use fixed age limits, but due to the application of the NTA variables, the consumption level takes into account country-specific characteristics of the age profiles of consumption.

Currently, the NTA profiles are developed for 10 EU countries: Austria, Finland, France, Germany, Hungary, Italy, Slovenia, Spain, Sweden and the UK.⁶ Based on these estimates we calculate the consumption values standardised by using the level of GDP per capita in the national currency for the year at which the NTA profile was assessed. The averaged consumption and labour income age profiles for 10 countries is shown in Figure 1.

Figure 1. Average age profiles of consumption and labour income for 10 EU countries



Source: Authors’ calculations based on data from www.ntaccounts.org and IMF database for GDP per capita information

3. Initial results

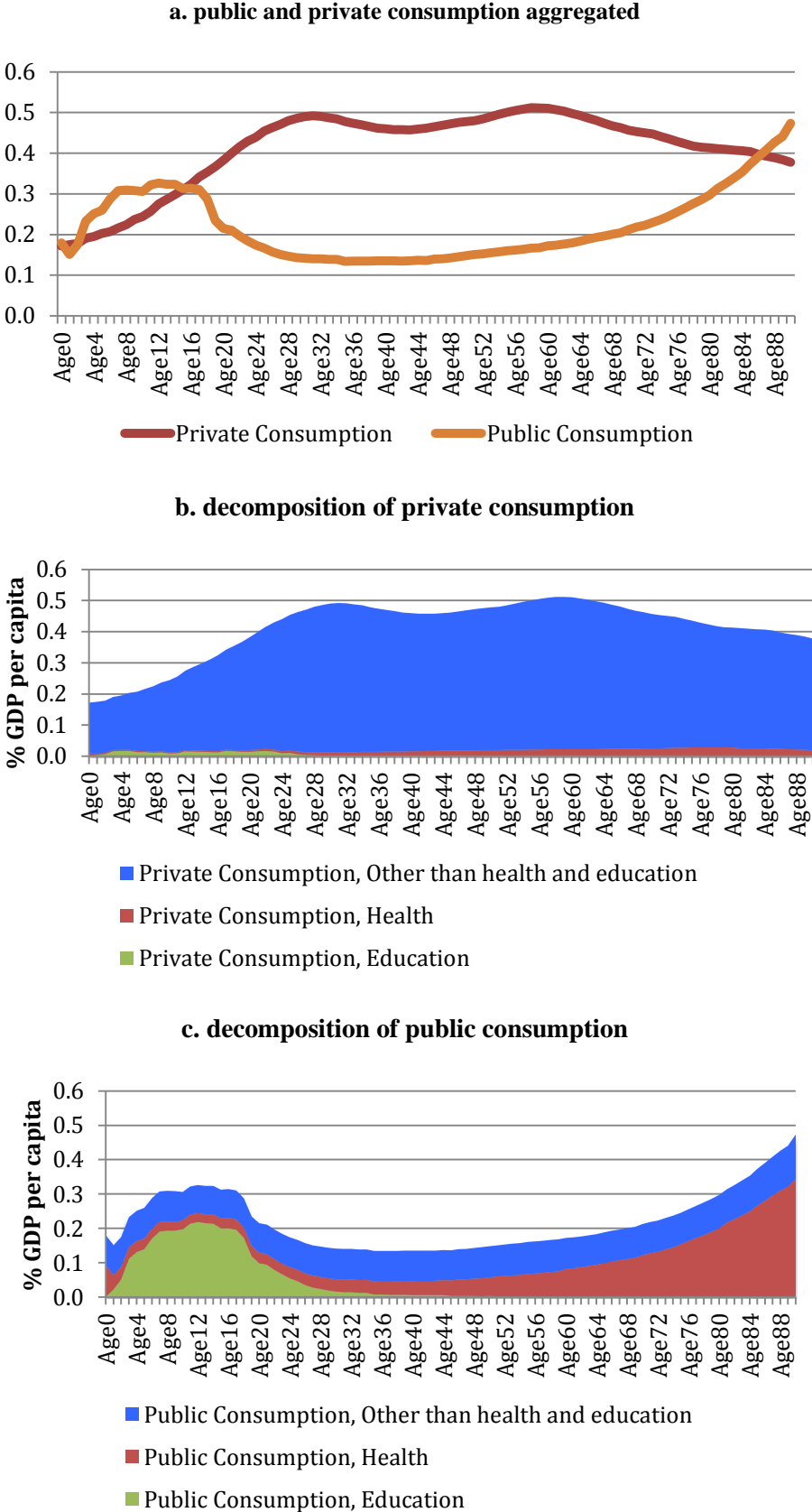
3.1. Public and private consumption age profiles

Application of the NTA methodology for the EU countries and resulting age profiles of consumption estimated for the EU countries indicate vulnerability of the public sector to the population ageing. The age profile of private consumption indicates that the highest consumption levels are observed in the working generation, while the public consumption is distributed among the young and senior generations (Figure 2). In particular, public consumption increases fast in the senior generation, mainly caused by increase of public consumption on health. Additionally, it should be noted that private consumption at older ages is mainly financed from the old-age pension transfers, which are financed from public sources.

For each of age groups, understanding the size and nature of public and private consumption is a starting point for further analyses on the intergenerational distribution. NTA methodology allows seeing clearly the public-private mix of consumption financing for different ages and distinct patterns of financing consumption of young, prime age and senior generations.

⁶ In the final version of the paper we plan to use age profiles of all EU countries, developed under the AGENTA project (www.agenta-project.eu).

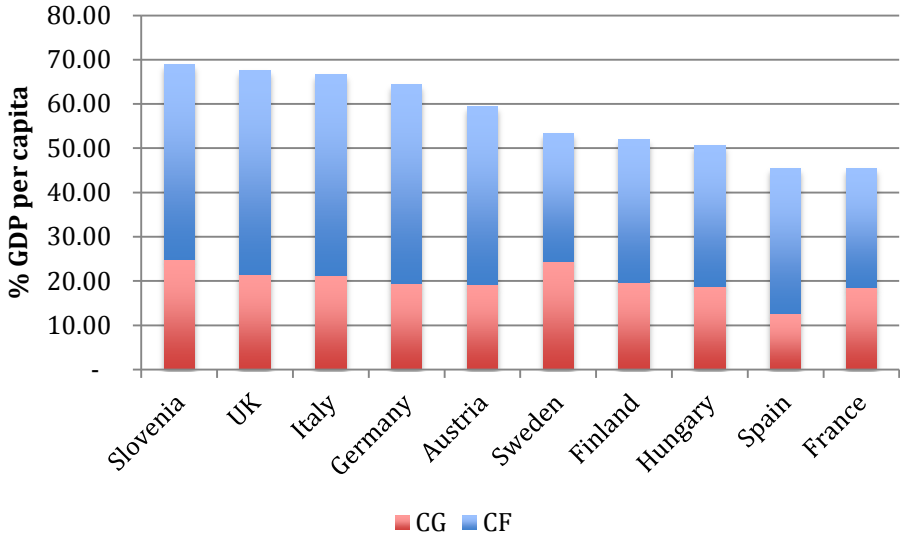
Figure 2. Average age profiles and structure of public and private for 10 EU countries



Source: Authors' calculations based on data from www.ntaccounts.org and IMF database for GDP per capita information

If we take a closer look at individual countries, we see that there are differences related to the level of overall consumption as well as its distribution between public and private parts as well as between the generations. The aggregated consumption exceeds 60% of GDP per capita in Slovenia, UK, Italy and Germany, while it is below 50% in Spain and France. The level of public consumption is particularly high in Slovenia and Sweden, exceeding 24% of GDP per capita, while it is lower than the average in Spain, where it is below 13% of GDP per capita. Public and private consumption is not significantly correlated between the countries (coefficient of correlation is 0.29).

Figure 3. Aggregated level of public and private consumption in the 10 EU countries



Not: CG: public consumption, CF: private consumption

Source: Authors’ calculations based on data from www.ntaccounts.org and IMF database for GDP per capita information

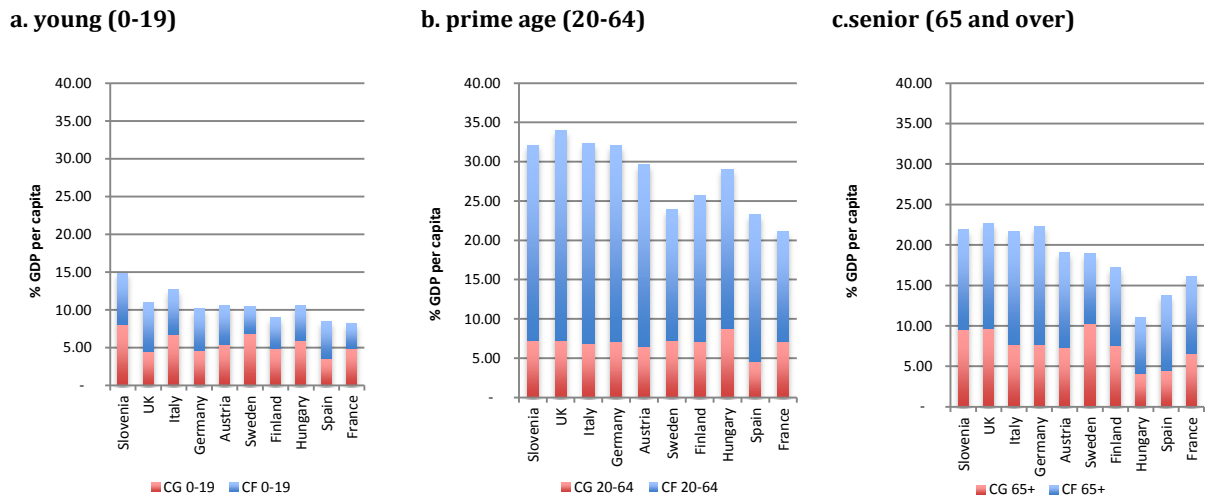
3.2. Public and private consumption by generation

Figure 4 presents the split of the public and private consumption by three generations. In the case of young and senior generations we see a higher contribution of public consumption to the general consumption level, while in the case of the prime age generation this share is lower. The correlation between public and private consumption by generations indicates that there is no complementarity of the consumption for young generation (0.26) and prime age generation (0.10). There is somewhat higher level of correlation of these variables for the senior generation (0.46).

Private (and overall) consumption is highest for the prime age generation (though it should be noted that this generation covers 45 cohorts).

For each generation we observe differences between countries with regards to public spending. Public consumption for young generation exceed 8% of GDP per capita in Slovenia, while in Spain it is below 4% of GDP per capita. In the case of the prime age generation, the public spending for most of the countries is around 7% of GDP per capita with two outliers: Hungary (8.8%) and Spain (4.5%). The largest differences are seen in the case of the senior generation. Public spending exceeds 10% of GDP per capita in Slovenia, the UK and Sweden, while it is around 5% of GDP per capita in Hungary and Spain.

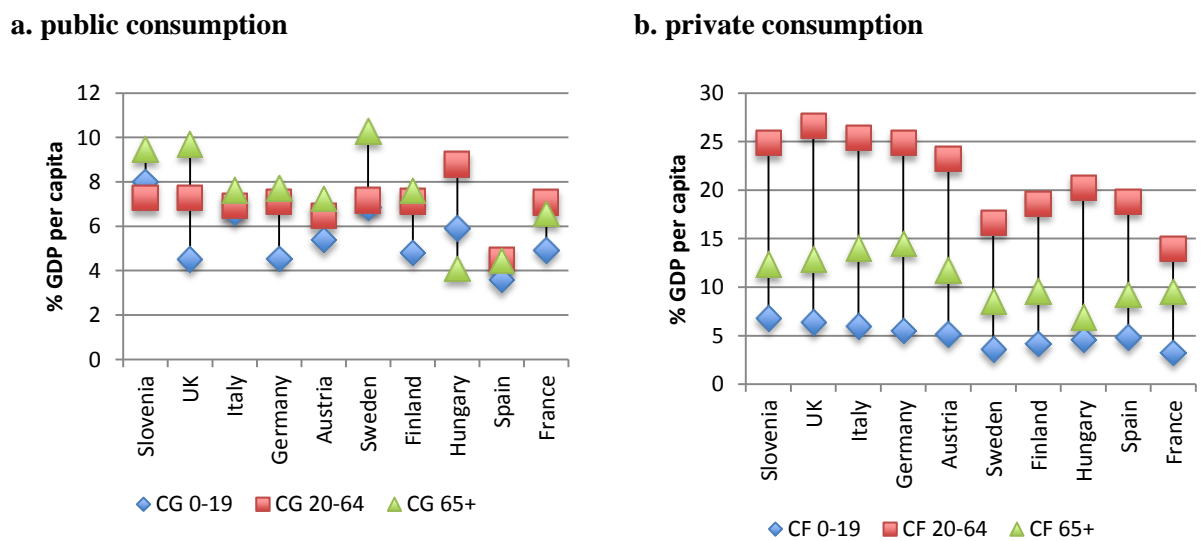
Figure 4. Public and private consumption in the 10 EU countries by generation



Source: Authors' calculations based on data from www.ntaccounts.org and IMF database for GDP per capita information

The spread of each category of consumption (relation of maximum to minimum) is around 2, which means that the highest level of consumption among the 10 countries is twice as high as the lowest level. The only notable exception is the public consumption for the senior generation, when the spread is 2.5. Figure 5 shows the level of public and private consumption by generation by country. While the pattern of private consumption is similar, we observe differences in the public consumption level. In majority of the countries, the public consumption for the senior generation is highest, including in particular Sweden, the UK and Slovenia. In Hungary, France and Spain the public consumption for the young generation, excluding pensions, exceeds the one for the senior. Finally, the spread of public consumption by generation is lowest in the Italy, Spain and Austria, while it is the highest in the UK and Hungary.

Figure 5. Public and private consumption in the 10 EU countries by generation and type of consumption



Source: Authors' calculations based on data from www.ntaccounts.org and IMF database for GDP per capita information

Based on the public consumption levels divided by generations we can initially identify the following groups of countries⁷:

- (i) Countries with preference of younger generations: Hungary and France
- (ii) Countries with preference of senior generations: Slovenia, the UK, Germany, Finland and Sweden;
- (iii) Countries with public consumption balanced between generations: Italy, Austria and Spain.

Let us now add the part of the private consumption of the senior generation finance from pensions to the public consumption⁸. In the 10 countries the share of pension income in total income of people in age group 65 and older dominates, which is illustrated in Figure 6. It ranges from 76% in Sweden to as much as 95% in Hungary. Figure 7 presents the results. As a result, we see that the distribution of public consumption including pension income is dominated in all of the countries by the consumption of the senior generation and countries differ only by the difference of the level of public consumption addressed to different generation. After this extension we can initially identify three groups of countries:

- (i) In five countries (Slovenia, UK, Italy, Germany and Austria) the other public consumption with pensions reaches around 20% of GDP per capita, which is around 80% of the consumption of the prime-age generation.
- (ii) In Sweden, France and Finland the level of public consumption with pensions of the senior generation is 15% of GDP per capita, which is similar to the level of the prime age generation;
- (iii) In Hungary and Spain the senior generation has other public consumption and pension-finance other private consumption at the level of 10-12% of GDP, which is slightly more than a half of the level of other private consumption of the prime age generation.

Figure 6. Share of pensions in total income of senior generation

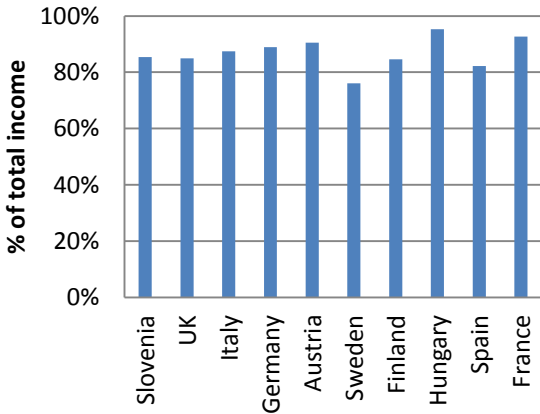
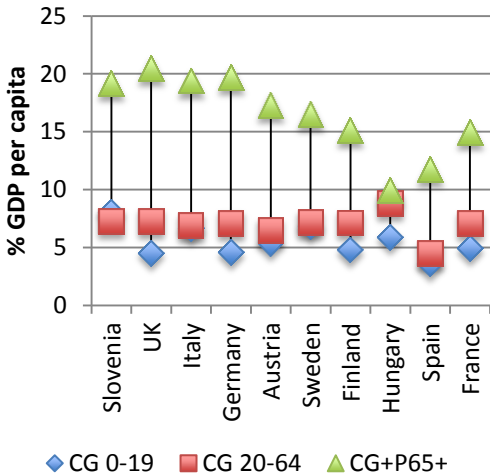


Figure 7. Public consumption with added pension income by generation



Source: Authors' calculations based EU SILC 2013 data

Source: Authors' calculations based on data from www.ntaccounts.org and IMF database for GDP per capita information

⁷ In the final analysis we will be performing a cluster analysis (using k-means method) to group countries. The current country sample would allow us to identify 2 clusters.

⁸ We estimated this part based on the EU SILC 2013 as a share of income of people in age group 65 and over coming from old-age and survivor pensions.

Pensions are an important component of public expenditure. It determines the level of public expenditure, directly or indirectly via income transfers. Pensions provided by the mandatory systems are the long-term obligations; it cannot be easily modified towards the consumption of younger generations.

3.3. Public and private consumption by type of consumption and generation

Finally, we focus on the intergenerational distribution of public and private consumption between education, health and other consumption. We use ternary graphs to indicate the generational division of private and public consumption (Figure 8).

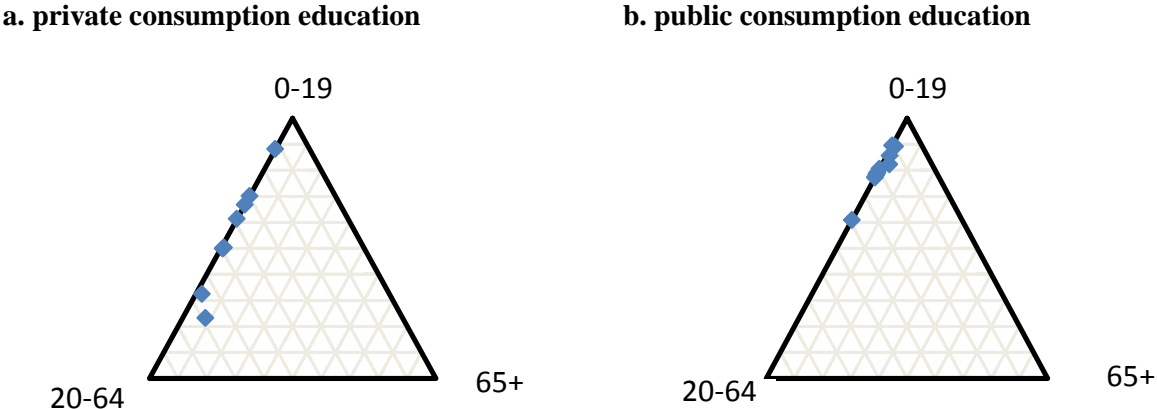
The results for consumption on education show that the private consumption in the 10 countries is allocated along the axis between the young and the prime age generation. The public consumption for education is concentrated in the young generation corner.

Generational distribution of public and private consumption on health and other consumption is similar for the 10 countries, which is illustrated in Figure 6. Private consumption on health is placed between the prime age and senior generations, with little share of the young generation. The public consumption on health is shifted more towards the senior generation and to the young generation, compared to the private consumption.

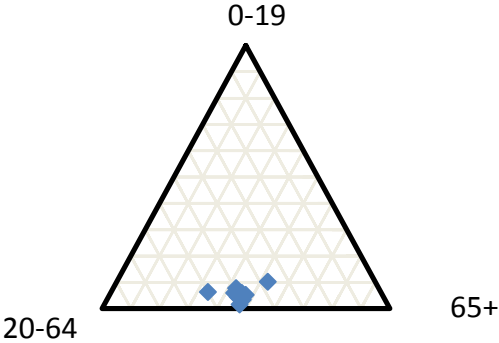
The most balanced from generations perspective is the consumption on other items than education and health. Share of other consumption is highest for the prime age generation with lower share for the senior generation and the lowest for the young generation. In the case of other public consumption, the distribution of consumption is the most equal between generations in all observed variables.

However, if we re-allocate the part of the other consumption for the senior generation from private to public part of the consumption (Figure 8 panels e and f) we see that there is a significant shift of the intergenerational structure of consumption financing. Private sources finance consumption of the young and prime age generations, while public sources finance mainly the other consumption of the senior generation, with smaller share of the prime age and even smaller – of the young generations.

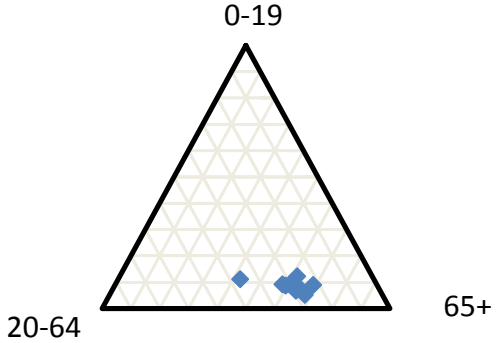
Figure 8. Public and private consumption on education, health and other consumption in selected EU countries: intergenerational distribution.



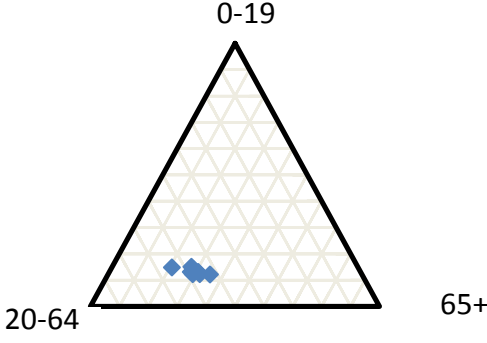
c. private consumption health



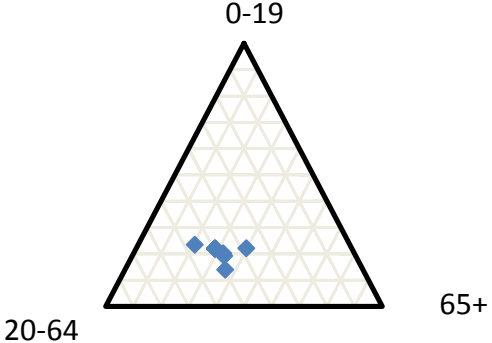
d. public consumption health



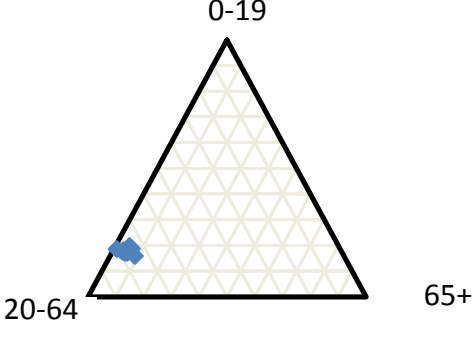
e. private consumption other



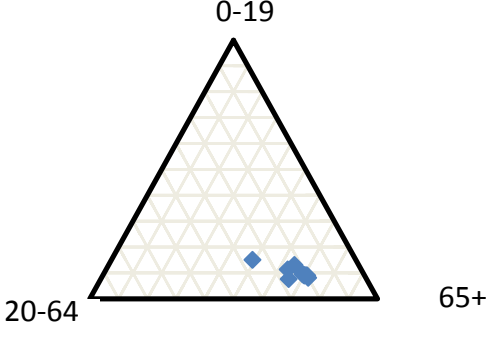
f. public consumption other



e. private consumption other less pensions



f. public consumption other plus pensions



Source: Authors' analysis

4. Conclusions and further analysis

The application of NTA age profiles allows us to analyse the outcomes of socio-economic policies measured by the level of public (and private) consumption of different generations, taking into account its distribution between education, health and other consumption. The European countries devote a significant share of the public consumption toward the young and senior generations. However, the distribution of public consumption age profiles by generations shows significant differences between countries. Our preliminary analysis identifies three groups of countries: (i) with preference for public

consumption oriented towards the young generation, (ii) with preference for public consumption oriented towards the senior generation and (iii) with equal distribution between different generations.

The generational distribution of consumption for health and other consumption shows significant similarities in the analysed countries. Countries differ with respect to the generational distribution of private and public consumption on education, that may indicate differences in approaches to lifelong learning and individual participation in human capital development. These results indicate that it is important to take into account this dimension in further analysis of welfare regimes in Europe.

Our further work will concentrate on:

- Extension of the sample of countries to the rest of the EU countries, based on the results of the AGENTA project;
- Application of cluster analysis for the assessment of the outcomes of social and economic policies in countries, based on the public and private education profiles;

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