manuscript No.
(will be inserted by the editor)

Age-specific income trends in Europe and the role of government redistribution (Extended abstract)

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Received: date / Accepted: date

Abstract Age-specific income trends differ considerably across European countries, with the old-age orientation of welfare states as one important explanation. Previous research and preliminary data suggests that income of the young working-age population declined in most European countries in the aftermath of the financial crisis of 2008, while the income of the population older than 60 was hardly affected. Our analysis combines data from the European System of Accounts with European micro data to get comparable estimates of individual net income by age and gender. These data are used to analyse age-specific income differences and their change during the period 2008-2021 in all European countries. A particular focus is on the role of taxes and social benefits in shaping income trends.

Keywords Generational Economy · Income · Intergenerational Equity

1 Introduction

Age-specific incomes and their changes differ considerably across European countries. Among the main determinants of age-specific income trends are employment, wage growth and government redistribution. This article analyses age-specific income trends in European countries during the period from 2008 to 2021 and focuses on the role of welfare state redistribution in shaping these trends.

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The analysis is based on measures of individual net income, which are constructed by combining data from the European System of Accounts (ESA) with micro data from the European Statistics of Income and Living Conditions (EU-SILC) and the EUROMOD tax-benefit microsimulation model. The measure of individual net incomes enables a detailed comparative analysis of income, its components and their change at each age.

Our analysis of individual net income in the period 2008 - 2021 shows general income differences between distinct age groups in European countries, as well as their change during a period of multiple economic crises. It helps to identify challenges associated with income differences across age groups and best practice examples of welfare institutions that foster equity between generations.

1.1 What do we know already?

The consequences of economic crisis differ between age groups, with welfare state institutions as important factor. Chauvel and Schröder (2014) show that in conservative welfare states (in particular Mediterranean countries) the burden of adjustment to post-1975 economic slowdown was put mainly on young cohorts, with long term effects on their income. In liberal and social democratic welfare states in Northern Europe this effect was much weaker. Lynch (2001) analyses the age-orientation of social policy regimes and finds Greece, Italy and Spain among the countries with the most elderly-oriented policies, Northern European countries among age-neutral countries. She argues that the way governments redistribute and allocate risks between the young and the elderly is a consequence of long-term evolution of welfare states and deeply embedded in welfare state institutions (Lynch (2006)).

Our own research reinforces this finding by analysing the consequences of the 2008 financial crisis and the sovereign debt crisis on age-specific income and government redistribution. Using EU-SILC micro data on individual net income for nine countries, Hammer, Spitzer, and Prskawetz (2022) show that the income of the young population in Italy, Spain and Greece faced strong income losses from the financial and sovereign debt crises, while incomes of the population 60 and older increased. In the central European countries, the income of the young merely stagnated between 2008 and 2017, but increased for the population 60+. Among the analysed countries only in Estonia and Poland incomes of the young increased stronger than for the elderly. The decline in income of the young was mostly due to decline in employment and in wages, while the increase among the elderly was a combined effect of higher employment and higher public transfers.

Spitzer, Hammer, and Reiter (2023) reiterated this finding for 27 European countries using gross-income and shed also more light on the dynamics. A common pattern among all countries is that income of the younger population did actually decline, while the retired population was hardly affected. From 2014 onward incomes started to recover in most European countries. The highest increases are found in Eastern European countries, where the increase in income of the young eventually surpassed the increase for older age-groups. However, in Southern Europe, incomes of the working age population stayed well below 2008 levels. Nevertheless, the income of the population 60 and older increased in Italy and Spain because of a strong increase in government redistribution.

1.2 Research gaps and our contribution

The current research leaves several gaps. First, a comprehensive analysis of age-specific incomes needs to focus on individual net income rather than gross income. Only net income reflects differences in taxation by type of income and changes in taxation over time. By using the tax-benefit simulation model EUROMOD we close this gap with estimates of age-specific net incomes for all European countries.

Second, estimates based only on micro data change over time due to random variation and due to systematic changes in survey methodology. Aggregate data from National Accounts are much less affected by such changes over time. By adjusting the micro data to aggregates in ESA we combine the advantages from both sources: The more reliable information on total values from ESA and the information on the distribution of income by age and other characteristics from the micro data.

Third, little is known about the effect of COVID on age-specific incomes. The reaction to this crisis was different from the previous: governments tried to alleviate the economic consequences of the crisis with generous cash support to companies and households. We analyse, if the country patterns on how costs of the crisis are allocated to young are again visible during COVID19. Our data capture also the first two years of the COVID19 pandemic.

The fourth important contribution is the focus on the role of public transfers. We adapt the redistribution measure developed in Hammer, Christl, and De Poli (2023) and extend the analysis of public redistribution with the time dimension. Thereby we get insights how public redistribution changes over time and affect income of individuals at different age.

To summarize, our analysis addresses the following research questions:

- How did disposable income change during the period of multiple economic crises, including the financial crisis, the sovereign debt crises and years of the COVID19 pandemic?
- How much of the change in disposable income can be attributed to changes in primary income, taxes and benefits?
- How did public redistribution affect the differences in income trends across age groups?

2 Data and Methodology, Preliminary Results

2.1 Data

Income and transfer data used in our analysis are part of European National Transfer Accounts (European NTAs). In general, NTAs combine aggregate data from national accounts and micro data. A detailed description of the method is provided in United Nations (2013). Such an approach uses the advantages of both sources: the higher reliability regarding total values of National Accounts and the distributional information in micro data. Our analysis for Europe is based on ESA and EU-SILC together with EUROMOD. EU-SILC provides micro data on income and household characteristics, while EUROMOD simulates taxes and benefits based on the design of country-specific tax-benefits systems. The data

contains detailed information on socioeconomic characteristics, income, taxes paid and benefits received.

As a measure of income we use the total value of income from employment and self-employment. Asset income is not included in our analysis, because the micro data capture only a small part of asset income and therefore do not allow reliable estimates of its distribution across age. In general, asset income plays for most households a negligible role, except the service rendered from owner occupied housing - which we do consider in the analysis.

Government redistribution considers taxes paid on labour income and self-employment income (% of direct taxes) and social benefits in cash. To estimate individual contributions, we use the EUROMOD tax benefit simulation model.

2.2 Age-specific income and its change

To analyse age-specific incomes we distinguish three age groups: 20-39, 40-59, and 60+, in line with Hammer et al. (2022).

So far, European NTA data is still under construction, but the micro data provides also important preliminary insights (taken form Spitzer et al. (2023)). Figure 1 shows the changes over time as average of European geographical regions. In the aftermath of the financial and government debt crisis the population 20-39 had the highest income losses in absolute terms and relative to other age groups. However, in Eastern Europe income growth of the young recovered and its increase was much stronger for the young than for the oldest age group from 2017 onward. In Northern and Southern Europe income of the young stagnated/declined and grew much less than for older age groups over the whole period.

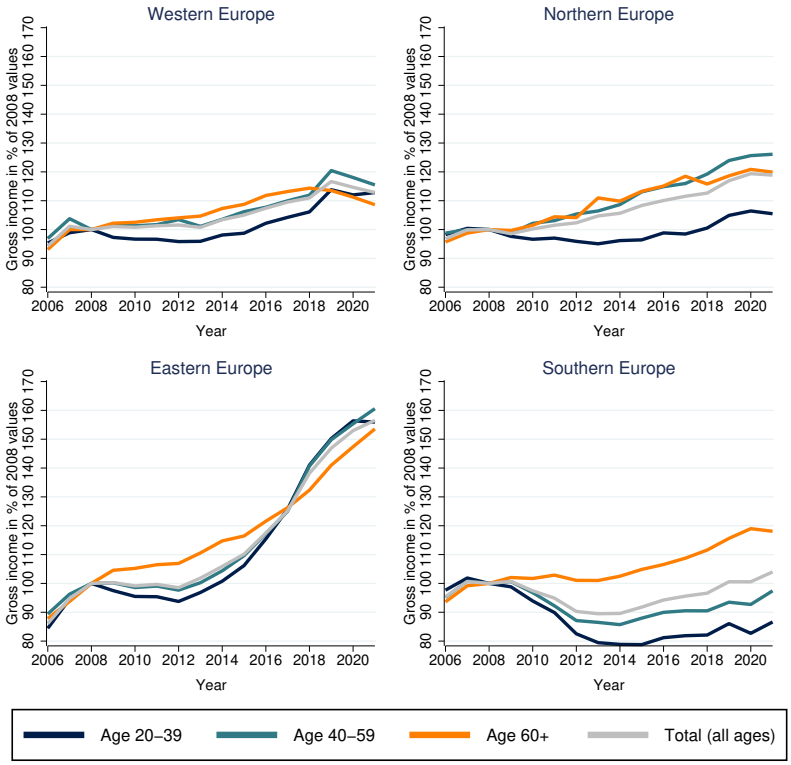

Fig. 1 Age-specific real income by year in percent of 2008 values.

2.3 Decompositon of income changes

The income-decomposition technique developed in Hammer et al. (2022) is used to identify the role of employment, wages and public transfers in shaping age-specific income trends. Figure 2 show examples for selected countries. The black dot represents total changes between 2008 and 2019, the coloured bars the components of the changes. One aspect is particularly interesting. The increase in income of the elderly is a combined effect of higher employment and higher benefits per beneficiary in almost all countries. The employment effect in Sweden is rather low, because the already high labour force participation of the population older than 60 did not change much in recent years.

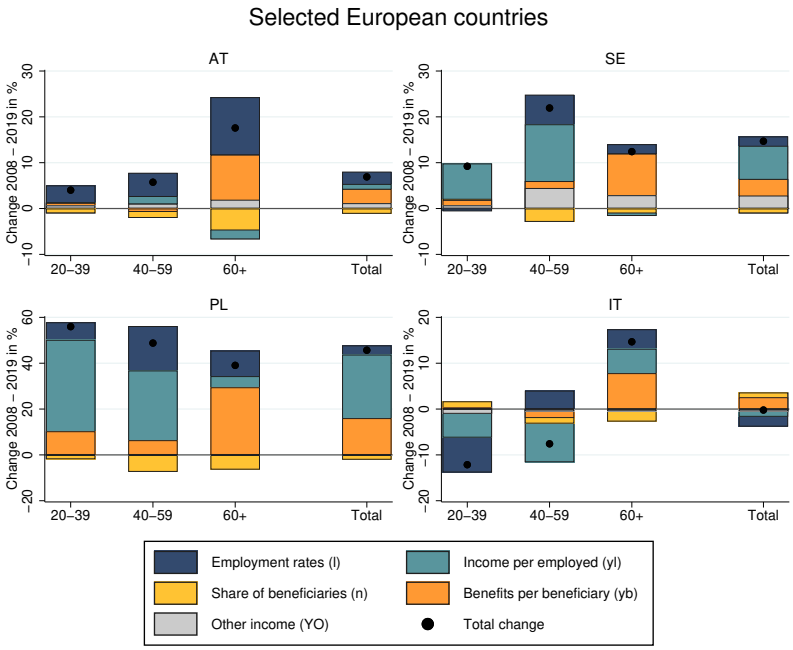

Fig. 2 Decomposition of income changes in selected countries.

2.4 Public transfers

Especially income changes for the population of age 60 and older are strongly influenced by public transfers. We use the concept of benefits ratios developed in Hammer et al. (2023) to analyse public redistribution and its change. Benefit ratios measure the redistribution to particular groups in the population relative to total income.

Fig 3 plots the old-age gross benefit ratios by European geographical regions over time. It measures total gross public benefits received by the population 60+ relative to total income. This analysis illustrates the strong increase in public redistribution to the elderly relative to income in Southern Europe: redistribution to the population 60+ increased from about 18 percent of total income in 2008 to 24 percent in 2014.

Already these preliminary results are insightful. Our analysis with individual data on taxes, benefits and net income will allow a more detailed analysis not only of benefits, but also how the young population have been affected by changes in taxes and social contributions.

3 Discussion and Summary

Our research paper highlights the cross-country differences in age-specific income, their change and the inter-linkage with taxes and benefits. The analysis used data

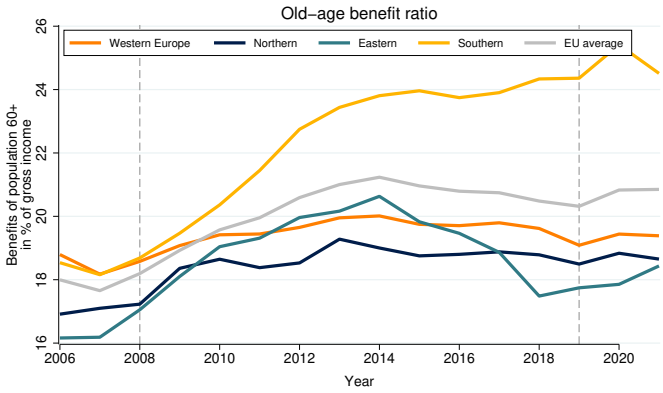

Fig. 3 Old-age benefit ratio: net benefits directed to the population 60 and older relative to total gross income by geographical region.

from European National Transfer Accounts, which combine advantages from aggregate data and micro data. It covers already years from the COVID pandemic and allows to analyse age-specific effects on income. The article identifies problematic developments, such as the decline of income for the young in Southern European countries, and sheds light on the mechanisms behind these developments.

References

Chauvel, L., & Schröder, M. (2014). Generational inequalities and welfare regimes. *Social Forces*, *92*(4), 1259–1283.

Hammer, B., Christl, M., & De Poli, S. (2023). Public redistribution in europe: Between generations or income groups? *The Journal of the Economics of Ageing*, *24*.

Hammer, B., Spitzer, S., & Prskawetz, A. (2022). Age-specific income trends in europe: The role of employment, wages, and social transfers. *Social indicators research*, *162*(2), 525–547.

Lynch, J. (2001). The age-orientation of social policy regimes in OECD countries. *Journal of Social Policy*, *30*, 411–436.

Lynch, J. (2006). *Age in the welfare state: The origins of social spending on pensioners, workers, and children.* Cambridge University Press.

Spitzer, S., Hammer, B., & Reiter, C. (2023). *Intergenerational income dynamics in Europe: Past trends and current challenges.* Eurofound Working Paper WPEF23039.

United Nations. (2013). *National Transfer Accounts Manual: Measuring and Analysing the Generational Economy.*