



Who Pays for Demographic Change?

Public Finances and Intergenerational Transfers

Key messages:

- Economic consequences of population ageing are not just determined by demographic change, but to a large extent by the characteristics of the economic life cycle.
- The concept of the life cycle deficit provides a new way to measure dependency based on the difference between age-specific consumption and production.
- Maintaining the fiscal sustainability of the public transfer systems in many European countries requires a rethinking of the average economic life cycle.
- Political reforms need to take into account not only public transfers, but also private transfers, particularly those in the form of services to other household members through unpaid work.

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› The Economic Consequences of Ageing

Population ageing in Europe has significant economic consequences. The behaviour, needs and social situations of individuals vary strongly by age, for example in regard to work, consumption or taxes paid. There are extended periods of dependency at the beginning and end of life. Children and older people consume more resources than they produce through their own labour, while working-age adults produce more than they consume. This economic life cycle can be financed by public transfers (e.g. healthcare or pensions), private transfers (e.g. parents financing children's consumption) and asset reallocation (e.g. savings or selling one's home). Changes in the age distribution in a society also change the composition of this intergenerational transfer system. Therefore, the design of the transfer system determines whether population ageing leads to an expansion of public transfers, private transfers or asset reallocation. A better understanding of this reallocation of resources across age and of the relation between age and economic activities is necessary to guide any welfare system reform in the face of population ageing.

› The AGENTA Project – National Transfer Accounts

This policy brief refers to the EU-funded AGENTA project, which aims to explain the past and forecast the future of taxes, public transfers and services in light of demographic change in the EU (www.agenta-project.eu). It relies on the innovative methodology of National Transfer Accounts (NTAs), which offers the possibility to study the economic life cycle at aggregate levels (Lee & Mason 2011). NTAs are consistent with Standard National Accounts (SNAs), which describe aggregate features of an economy, e.g. total consumption or gross domestic product. NTAs, however, include two additional crucial aspects: age and private transfers.

› Financing the Economic Life Cycle

Figure 1 shows how the average economic life cycle is financed in the EU and around the world (Gál 2015). The black dotted lines represent the periods of life cycle deficits (when people's consumption exceeds their labour income) and life cycle surpluses (when people's labour income exceeds their consumption). The similar dotted lines in both graphs indicate that the aggregate economic behaviour is quite uniform around the world, while the financing of the life cycle is very different. In the EU, public transfers – which are basically taxes paid by the active population and what people in inactive sections of the life cycle receive – play a crucial role. Worldwide, private transfers and asset-

based reallocation are comparably more important.

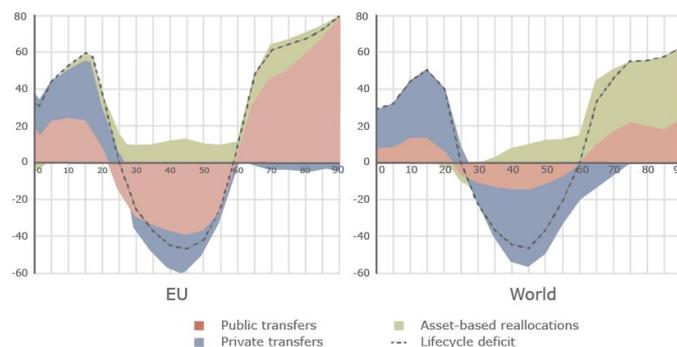


Figure 1: Financing the life cycle deficit in the EU (10 countries, 70% of people living in the EU) and around the world (29 countries, 67% of mankind), per capita figures, 2000
Source: Gál (2015), data from www.ntaccounts.org

Table 1 provides examples of how specific countries from diverse parts of the world vary in regard to the relative importance of different transfers in financing the consumption of those who are 60 years and older. In Sweden, Austria and Germany, the consumption of the elderly is mostly financed by public transfers, while in the U.S., savings are the most important means of financing. In all other countries savings also play a substantial role in financing older age, with the exception of Austria and Sweden. Family transfers towards the elderly are most important in South Korea, while in the other countries they are either marginal, like in Japan, or work in the opposite way in the sense that the elderly support younger family members. Another difference is the importance of one's own labour income in old age. In the non-European countries in Table 1, one's own labour income funds between 23% (South Korea) and 12% (Japan) of the elderly's consumption. This number is much lower in the European countries, particularly in Germany (3%) and Austria (2%). This shows how important it is to understand the characteristics of different national transfer systems in order to realistically assess what population ageing implies for a country.

	Labour income	Private transfers	Public transfers	Savings	Total
Austria	2	-6	94	9	100
Germany	3	-7	69	35	100
Japan	12	1	51	37	100
South Korea	23	13	28	36	100
Spain	7	-12	59	46	100
Sweden	7	-10	101	2	100
U.S.	16	-7	32	59	100

Table 1: Funding of consumption of the elderly in %

Source: Lee and Mason, NTA project (www.ntaccounts.org)

› A Realistic Measurement of Economic Dependency

The economic effects of ageing are often expressed by the demographic dependency ratio. This measure puts the non-working population in relation to the working population, which are both defined by fixed age limits. Often, the young-age dependency ratio is calculated as the share of the population under 20 to those of working age (20-64), while the old-age dependency ratio is defined as the share of the population aged 65+ to those of working age. These indicators give a limited and biased estimate of economic dependency since they only consider the demographic structure of a country. The type and intensity of economic activities at each age, however, may differ strongly across countries depending on country-specific characteristics of individuals (e.g. education, employment, retirement), institutional arrangements (e.g. family policies, labour market regulations), as well as the overall macroeconomic situation. NTAs allow to take these factors into account by identifying the stages of the life cycle on the basis of the life cycle deficit (consumption > income) and the life cycle surplus (income > consumption).

The aggregate life cycle deficit is a measure of the degree of economic dependency of children and the elderly (Hammer et al. 2015). It is derived by multiplying the age-specific life cycle deficit with the corresponding population numbers, adding this together for all age groups and dividing this number by total labour income. This measure can be calculated for children and elderly persons separately. A similar measure can be derived for the support capability of the working-age population: The aggregate life cycle surplus represents the share of labour income, which is not consumed by the working-age population and available for transfers to other age groups.

Table 2 shows the aggregate life cycle deficits and surpluses for different age groups in ten European countries (Hammer et al. 2015). Also shown are the ages when those indicators switch from deficit to surplus and the standard dependency ratios that are based on fixed age limits. According to the life cycle measures, an average young person stays economically dependent for around five years longer (between ages 23-27) than assumed by the demographic dependency ratios where young people are assumed to be dependent only until the age of 20. In old age, individuals become economically dependent about six years earlier (mostly around age 59) as compared to the assumed age limit of 65 years for the standard dependency ratio.

Table 2 also indicates that the life cycle deficit/surplus is strongly influenced by the age structure: France as the

country with the highest youth dependency ratio (42%) is also the country with the highest life cycle deficit in young age (29%). Italy and Germany are the countries with the highest old-age dependency rates (33% and 34%, respectively) and also have the highest life cycle deficit in old age (32% and 30%, respectively). The values for Sweden, however, show that the population structure is not the only determinant of economic dependency: With an old-age dependency ratio of 31%, Sweden has a rather old population. However, the life cycle deficit in old age is not particularly high at 23% and the average production exceeds consumption until the age of 63 – which is four to six years longer than in the other countries. In Sweden, the demographic structure is compensated for by a higher labour force participation rate and the higher labour income of elderly persons. This shows how the aggregate life cycle deficit provides a more realistic measurement of economic dependency than standard dependency ratios that ignore the cross-country heterogeneity of economic characteristics by age.

Country	Aggregate life cycle deficit / surplus in % of labour income			Age borders LCD		Standard dependency ratio	
	Young	Working age	Old	Positive until	Positive from	Young (< 20)	Old (≥ 65)
Austria	20	32	25	24	59	34	29
Finland	26	28	25	26	60	38	28
France	29	31	24	23	59	42	28
Germany	18	31	30	26	60	31	34
Hungary	22	32	27	24	58	33	27
Italy	26	24	32	27	60	31	33
Slovenia	24	39	24	25	58	30	26
Spain	25	27	23	26	60	31	27
Sweden	25	39	23	26	64	40	31
UK	27	23	25	26	59	40	28

Table 2: The life cycle deficit (LCD) in ten European countries
Source: EUROSTAT (population); EU-SILC 2011 (labour income); www.ntaccounts.org (consumption)

› The Importance of Time Transfers and Gender Aspects

Even though NTAs provide a number of advantages in comparison to SNAs by considering age and private transfers, it does not cover the provision and consumption of unpaid household labour. The future of the sustainability of the welfare state, however, can only be understood if these private, non-market-based reallocations across ages are also considered (Gál et al. 2015). Figure 2 shows, by using the example of Hungary, how taking account of these time transfers alters our understanding of the way inactive

periods of the life cycle are funded. The differences in the relative size and composition of the transfer packages unsurprisingly indicate that children cost parents, while elderly cost taxpayers. The results, however, contradict the common wisdom that the old cost more than children. Per capita expenses on children are significantly higher if all funding channels are taken into account. We spend less on the elderly, but we spend it in a more visible way. Altogether, two-thirds of the full transfer package for children is exchanged within the household and remains unobserved by public statistics, whereas up to 90% of intergenerational transfers for the elderly go through public channels.

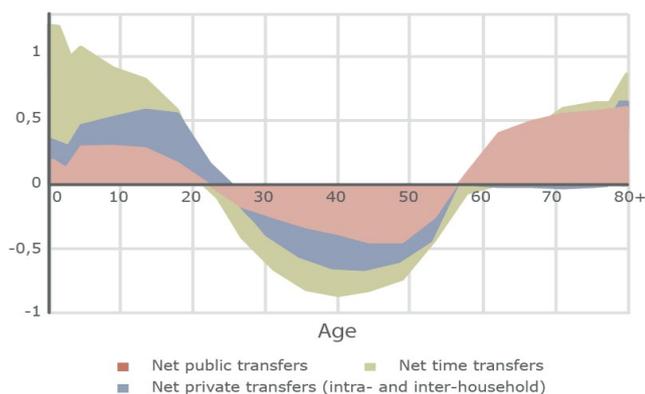


Figure 2: Cumulative effects of various channels of inter-age resource reallocation, Hungary, 2000

Source: Gál et al. (2015)

Notes: Values are normalized on the per capita labour income of persons aged 30-49.

Another important extension of NTAs is to consider gender differences in the type and intensity of production activities at each age level (e.g. Hammer et al. 2015). Since women take up a great share of unpaid work, reforms that aim to increase female labour force participation, for instance, also need to consider that this may reduce women's contributions to unpaid work and thereby the degree of private transfers to children. This would necessitate a rebalancing of the transfer package by increasing the level of public transfers (e.g. public childcare).

› Policy Recommendations

One of the central policy challenges of this century is to provide pensions and healthcare for rapidly growing elderly populations without placing unacceptable burdens on other age groups or endangering economic growth. Given the political opposition to reduction or elimination of public services, the most likely solution to population ageing seems to be an increase in the tax base rather than a decrease in welfare provision (Bengtsson and Scott 2011). From an NTA perspective, the question is: How can age-specific economic behaviour be changed to increase the tax base? A combination of three approaches seems to be particularly

promising in this regard: (1) Increasing the overall level of employment so that a greater share of those of working age actually work (esp. among women and elderly), (2) raising the retirement age in response to longer and healthier life expectancy and (3) increasing productivity (e.g. investment in human capital). It is essential, however, that policy reforms always take into account the characteristics of the national transfer system and the interrelation between different forms of transfers.

References

- Bengtsson, T. and K. Scott (2011): "Population Ageing and the Future of the Welfare State: The Example of Sweden", in: *Population and Development Review* 37 (Supplement): 158-170.
- Gál, R. I. (2015): "The Measurement of Intergenerational Economic Flows – National Transfer Accounts (NTA)", Presentation at the Population Europe Event "Who Pays for Demographic Change? Public Finances and Intergenerational Transfers", Brussels, 27.01.15.
- Gál, R. I., Szabó, E. and L. Vargha (2015): "The Age-Profile of Invisible Transfers: The True Size of Asymmetry in Inter-Age Reallocations", in: *The Journal of the Economics of Ageing* 5: 98-104.
- Hammer, B., Prskawetz, A. and I. Freund (2015): "Production Activities and Economic Dependency by Age and Gender in Europe: A Cross-Country Comparison", in: *The Journal of the Economics of Ageing* 5: 86-97.
- Lee, R. and A. Mason (2011) (eds.): "Population Ageing and the Generational Economy: A Global Perspective", Cheltenham: Edward Elgar Publishing.
- Mason, A. and R. Lee (2006): "Transfers, Capital, and Consumption Over the Demographic Transition", in Clark, R., Mason, A. and N. Ogawa (eds.): "Population Aging, Intergenerational Transfers and the Macroeconomy", Northampton, MA: Edward Elgar: 128-162.

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