

Journal Pre-proofs

Full length article

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PII: S2212-828X(19)30121-5

DOI: <https://doi.org/10.1016/j.jeoa.2019.100234>

Reference: JEOA 100234

To appear in: *The Journal of the Economics of Ageing*

Received Date: 28 May 2019

Revised Date: 27 November 2019

Accepted Date: 11 December 2019

Please cite this article as: B. Hammer, S. Spitzer, L. Vargha, T. Istenič, The gender dimension of intergenerational transfers in Europe, *The Journal of the Economics of Ageing* (2019), doi: <https://doi.org/10.1016/j.jeoa.2019.100234>

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The gender dimension of intergenerational transfers in Europe

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14-12-2019

Abstract

This paper analyses the gender dimension of intergenerational transfers in 15 European countries using National Transfer Accounts (NTA) data on age- and gender-specific transfers in 2010. We combine NTA data with information from life tables to derive measures of gender-specific net transfers over the whole life course and by life stages. The analysis distinguishes between public and private transfer flows, and accounts for transfers of services produced by unpaid work. Furthermore, we analyse public transfers in more detail by decomposing public old-age benefits into yearly averages and the number of years that individuals can expect to be net recipients. In all analysed countries, men contribute more to public transfers and finance a larger proportion of consumption needs of children, compared to women. By contrast, women provide most of the transfers of services produced by unpaid work, such as childcare and household work. While yearly net public benefits in old age are considerably smaller for women in most countries, total public benefits over the whole retirement period are higher for women due to their higher life expectancy.

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1 Introduction

Economic transfers between generations are essential elements of society. Typical for the human life course are periods of dependency in childhood and old age, characterised by consumption exceeding production. A large part of the consumption needs in childhood and old age are covered by transfers between generations.⁵ In Europe, intra-family transfers from parents play the most important role for children, while the needs of the retired population are mainly covered by public transfers.

Men and women differ considerably in their roles as providers and recipients of intergenerational transfers. Men are characterised by higher employment rates and higher income than women. For example, in Austria, Germany, Italy and the UK, men generated about two-thirds of total labour income in 2010. In Slovenia, the country with the lowest gender differences in average labour income, men still generated about 55 per cent of total labour income (Hammer, Prskawetz and Freund 2015). Consequently, men pay a higher share of income-based taxes and social contributions, thereby providing a larger proportion of public transfers to the elderly generation. Because of their higher labour income, men also finance a larger share of the consumption needs of children.

Unpaid household work and childcare also constitute important intergenerational transfers. These activities are mainly carried out by women, who are net providers of unpaid services to children and other adult household members. Vargha, Gál, and Crosby-Nagy (2017) estimate that working-age women carry out 2–4 hours of unpaid work each day for other household members. Transfer contributions in form of unpaid work vary substantially between European countries and are found to be particularly

⁵ A transfer is defined as transaction in which a person provides a good or service to another person without receiving from the latter any good, service or asset in return as counterpart. Important intergenerational transfers are the parents' care for their children; goods, services and monetary transfers provided to children; publicly financed education, pensions, health and long-term care.

large for women in Italy and Spain, corresponding to about 4 hours of unpaid work throughout the entire working age.

The specialisation of women in unpaid work is among the main determinants for the lower pensions of women in most European countries. Having a child is usually associated with an increase of unpaid work for women, along with a reduction of paid work, lower contributions to the pension system and consequently lower pensions (Blau and Kahn 2017). Overall, European women aged 65+ received 39 per cent less pension than men in 2009. The calculation of this gap includes persons without own pension. The pension gap is found to be lowest in most former socialist countries, where the difference between average male and female pension income in the elderly population 65+ is 20 per cent and less (Bettio, Tinios and Betti 2013). During socialism, the participation of women in paid work was encouraged, resulting in smaller differences between the careers of men and women. By contrast, in Luxembourg, Germany, Greece, Ireland, Spain and Malta, the gender gap in pension income is 45 per cent or more.

While average yearly pensions are lower for women, they are net receivers of public transfers for a much longer period than men. In most European countries, women retire considerably earlier than men (OECD 2019a) but have a much higher life expectancy. The average difference between male and female life expectancy at age 60 in the European Union is four years (Eurostat 2019a). It is therefore important to differentiate between yearly net benefits and the accumulated net benefits over a lifetime when analysing gender inequalities in the intergenerational transfer system.

For this analysis, we measure and analyse gender differences in transfer contributions and benefits at each life stage and over lifetime for 15 European countries. In particular, we address the following two research questions: (i) How large are gender differences in net intergenerational transfers over lifetime when all types of transfers are considered, including transfers in form of unpaid work? (ii) Does the public transfer system advantage men or women when life expectancy is taken into account?

This is the first paper that uses the comprehensive European National Transfer Accounts data for analysing gender-specific intergenerational transfers. It contributes to the discussion on gender equality in the transfer system by measuring transfers in form of unpaid work and by quantifying the effect of gender differences in life expectancy on transfers over lifetime. Even when women and men receive about the same amount of public transfers in lifetime terms, it is still problematic if they have to live from much lower yearly pensions than men and face a higher risk of poverty in old age (Eurostat 2015). On the other hand, men spend and enjoy a much lower number of years in retirement than women, despite their substantial contribution to the transfer system. It is important to explore gender inequalities considering differences in the level and duration of public old-age benefits. Especially, since these dimensions are crucial levers for adjusting the public transfer system in the context of population ageing.

2 Data

National Transfer Accounts (NTAs) are an accounting framework that provides comprehensive and detailed information on the age patterns of production, consumption and saving, and on transfers between age groups (Lee and Mason 2011, UN 2013). A novelty of the NTA system are estimates of intergenerational transfers within households. The basic NTA data consists of a range of age profiles, containing the per-capita averages of income, transfer payments and benefits, consumption and saving by age. Recent work extended the NTA system by gender-specific information. So-called National Time Transfer Accounts (NTTAs) complement the basic NTA system by providing age and gender-specific information on unpaid work. NTTAs are based on time use data and contain estimates of production, transfers and consumption of services that are produced by unpaid work (Donehower 2019). They measure how much time men and women use to produce services for other generations and genders.

Three types of transfers can be distinguished in NTAs and NTTAs: (i) public transfers, including pensions, health services and education as largest components; (ii) private market transfers, consisting predominantly of goods and services that are bought on the market and provided to other household members, mostly to children; and (iii) private non-market transfers, which consist of goods and services produced by unpaid work. Both types of private transfer consist mainly of the provision of goods and services to other household members. The term *market transfers* emphasises that what are transferred are goods and services that are acquired through market transactions, including the generation of income and the purchase of the goods. *Non-market transfers* do not involve market transactions; they consist of goods and services that are produced within households for own consumption or provided free of charge to other households. In our paper we refer mostly to net transfers, defined as transfer benefits less transfer contributions.

NTAs and NTTAs together provide comprehensive information on public and private transfers between age groups and genders. So far, research using both NTAs and NTTAs focused on single countries, including Germany (Kluge 2014), Spain (Rentería et al. 2016), Italy (Zannella 2015), Hungary (Gál, Szabó & Vargha 2015) and Austria (Hammer 2014). Hammer et al. (2015) combined the data from several countries but focus only on production. To combine the monetary flows in NTAs with the NTTAs measures in form of time, the NTTA quantities are valued with the wages that could be earned on the labour market with similar activities.

The most striking results from research using NTAs and NTTAs are the huge differences in the gender-specific levels of transfers and the large share of production that is provided to other generations by those at age 30–45. Germany and Austria are characterised by large gender differences in paid work and income, but with similar amounts of time devoted to total work (paid and unpaid). However, the estimates of the monetary value of contributions to intergenerational transfers are considerably lower for women. Among the explanations are lower-than-average wage rates for

household services and childcare, and consequently a lower value of private non-market transfers. Also, Italy and Spain are characterised by a much lower income of women, compared to men. However, because of high levels of unpaid work and private non-market transfers of women, in Italy and Spain the estimated value of female contributions to intergenerational transfers is higher than the male estimate. In Slovenia the gender differences in labour income are low, because of high full-time employment rates of women (Hammer et al. 2015; Sambt et al. 2016). Despite the similar levels of paid work of men and women, Slovenian women contribute considerably more time to unpaid work than men. In total they devote more time to work and make a higher contribution to intergenerational transfers. In all countries the size of intergenerational transfers shows a typical life course pattern. Contributions peak at age 30–40 when a large share of the population has care responsibilities for young children. It is also the age group which devote the highest amount of time to work (Zannella et al. 2018).

2.1 European National Transfer Accounts

Gender-specific NTA and NTTA data for 15 European countries provide the basis for the analysis of intergenerational transfers in this paper. The European NTA and NTTA data have been created as part of the AGENTA research project and are based on harmonised European micro-data to facilitate cross-country comparisons.⁶ A detailed description of the European NTA data and the methodology can be found in Istenič et al. (2016). European NTTA data are described by Vargha et al. (2017). In this paper we use the countries for which both European NTA and NTTA data are available.⁷ Additionally, NTTAs for Austria in 2008 have been calculated by the authors.

⁶ Information about AGENTA can be found at www.agenta-project.eu. European National Transfer Accounts data can be accessed at www.wittgensteincentre.org/ntadata.

⁷ We did not include Denmark. Contrary to other countries, the asset income in EU-SILC for Denmark includes profits and losses. We suspect that this difference results in incomparable estimates of gender-specific public transfers.

Included in our analysis are therefore Austria (AT), Belgium (BE), Bulgaria (BG), Germany (DE), Estonia (EE), Spain (ES), Finland (FI), France (FR), Italy (IT), Lithuania (LT), Latvia (LV), Poland (PL), Sweden (SE), Slovenia (SI) and the United Kingdom (UK). In the remaining part of the text this group of countries is referred to as *EU-15*.

Understanding gender-specific estimates of NTAs and NTTAs requires some knowledge of the methodology. In general, three steps can be distinguished in the compilation of NTAs. First, the quantities of income, transfers, consumption and saving for the total economy are derived from National Accounts and related data. Second, the distribution of those quantities over age groups is estimated using survey data and administrative data. Third, the household structure as given in the survey data, as well as the results from the previous two steps, are used to estimate private transfers within households. Not all of the NTA quantities can be unambiguously assigned to a certain gender and a certain age group. To allocate consumption and asset income to age groups, NTAs use a range of different rules and methods.

The allocation of consumption to individuals makes use of assumptions. For collective public consumption the NTA methodology assumes that everyone consumes the same amount, independent of age and gender. Data on private consumption are only available at household level. For the allocation of private consumption to individuals within households, NTAs use an age-specific equivalence scale. All household members of age 20 and older are assumed to consume the same share of total consumption of the household. Children until the age of 4 are assumed to consume 40 per cent of an adult member's share. For ages between 4 and 20 the NTA equivalence scale assumes a linear increase of the consumption share.

The estimates of intra-household market transfers are built on the difference between consumption and disposable income. It is assumed that the consumption of household members without income, or whose income falls short of consumption, is covered through transfers from other household members. The NTA transfer estimates reflect

the household structure and the distribution income within households but cannot identify an unequal distribution of consumption between men and women within households.

Private asset income, which is also given only at household level, is assigned to the household head. Since earnings are the most important criterion in identifying the household head, the head is more likely to be male than female. Few data allow to assess this assumption. Groß et al. (2017) find for Austria that in most households, assets are shared equally among couples. However, they show also that particularly valuable assets are more likely to belong to men. Consequently, men indeed own a considerably higher share of total assets and pay more of the taxes on asset income. The NTA rules for allocating asset income could bias gender-specific results. Nevertheless, in the absence of more detailed, individual data, the allocation of asset income to the household head seems to be the best approximation of the ownership structure of assets.

The age- and gender-specific estimates of production, transfers and consumption in NTTAs are based on time use data. The most important types of production captured in NTTAs are care services and household work. The age groups and genders that consume most of the care services can be identified with relative accuracy in the surveys, as there are usually only one or very few persons in a household who qualify as care consumers. For general household services it is not possible to identify the amount that certain household members consume. NTTAs use the assumption that each household member profits equally from these services. Age-specific consumption of household services is estimated by adding the time use for unpaid production of all household members and distributing it to all of them in equal shares. Private non-market transfers are calculated as difference between production and consumption. Most of the time use surveys used in NTTA do not refer to our reference year 2010. We assume that the structure of time use in the survey year also represents the structure of time use in 2010.

2.2 Combining paid and unpaid work

The combination of transfer data from NTAs and NTTAs requires their transformation into the same units. European NTAs are measured in Euro, while NTTAs are measured in minutes per day. Two alternative ways of transforming and comparing NTAs and NTTAs are used in the paper.

First, we transform non-market transfers into monetary units by valuing them with the average hourly net wage of a full-time worker. The valuation of unpaid work is a controversial topic (Varjonen et al. 2014). Should unpaid work be rated with the wage of a specialist, e.g. that of a cook, cleaner or nanny, or with the wage of a general housekeeper? Should gross or net wages be used? So far, there is no consensus in the research community on which wage rate is more appropriate. Poissonnier and Roy (2017) find that the choice of occupation makes little difference. However, the estimated values of unpaid work are about 40 per cent lower when net income is used to value unpaid work, compared to the use of gross income. No publicly available data source offers information on occupation-specific wage rates for all analysed countries. We therefore decided for average wages, which can be calculated from our NTA data source together with data on total working hours in the economy. The use of net wages can be regarded as a lower bound of alternative valuations of unpaid work in relation to paid work.

Second, we transform the transfers measured in money into time units. Public transfers and private market transfers are valued by the amount of time that an average person needs to work in employment to generate enough income to finance these transfers. This novel approach provides an intuitive measure of intergenerational support that can be easily compared across countries. Usual valuations of unpaid work, such as wages of a household specialist, result in a lower valuation of unpaid work compared to paid work, since wages for household work are below average wages. The approach of valuing all types of transfers equally in terms of time can be regarded as upper bound in the valuation of unpaid work relative to paid work.

2.3 Overview: age- and gender-specific transfers in Europe

We standardise the transfer measure in monetary units to facilitate comparisons across countries. In this paper the transfers in terms of money are measured as shares of the average yearly labour income of a full-time worker (YL) in each country. The average income of a full-time worker is estimated by dividing total labour income in the economy, as reported in National Accounts, by an estimate of the number of workers in full-time equivalents, taken from Eurostat (2010).

Figure 1 plots age-specific per-capita averages of net transfers by type and gender in the EU-15. The left panel shows the transfers in monetary terms, the right panel the transfers in form of time. Public transfers are in black, private market transfers in dark-grey and private non-market transfers in light-grey. Positive values indicate net transfer benefits, negative values net transfer contributions. The upper panel shows age-specific intergenerational transfers by type, not distinguishing by gender.

For children, the most important type of transfers are private non-market transfers, while public transfers are most important for elderly persons. Some general patterns in the transfer flows between generations are similar in all countries. Children and young adults are net receivers of transfers until their early twenties. The most important transfer component for children is private non-market transfers. At age 0 and age 1 the yearly value of the transfers amounts to 1.2 YL or about 8 hours of work per day. Total net transfers decrease with the age of children, because they demand less time. At age 23, total net transfer contributions become positive. The peak in providing transfers is at ages 35 to 40, when a large share of the population devotes time and income to their own children. All types of transfers considered, the value of net transfer payments in prime working age lies between 0.4 YL and 0.6 YL. In terms of time, they correspond to 3-4 hours of work per day. The population of age 60 and older are net receivers of intergenerational transfers, consisting mostly of public transfers. These transfers correspond to about 2-3 hours of work per day.

Men provide most of the public transfers and the private market transfers, women the transfers of services produced by unpaid work. The panels in the second and third row in Figure 1 show the age-specific values by gender as average of the EU-15. There are few gender differences in net transfer benefits received in childhood. However, at working age and old age we observe some clear gender differences: while men provide most of the public and the private market transfers, women provide most of the non-market transfers in the form of unpaid work. Old age benefits consist mainly of public transfers, being somewhat smaller for women than for men. Even in old age women are net providers of private non-market transfers, while men are net providers of private market transfers.

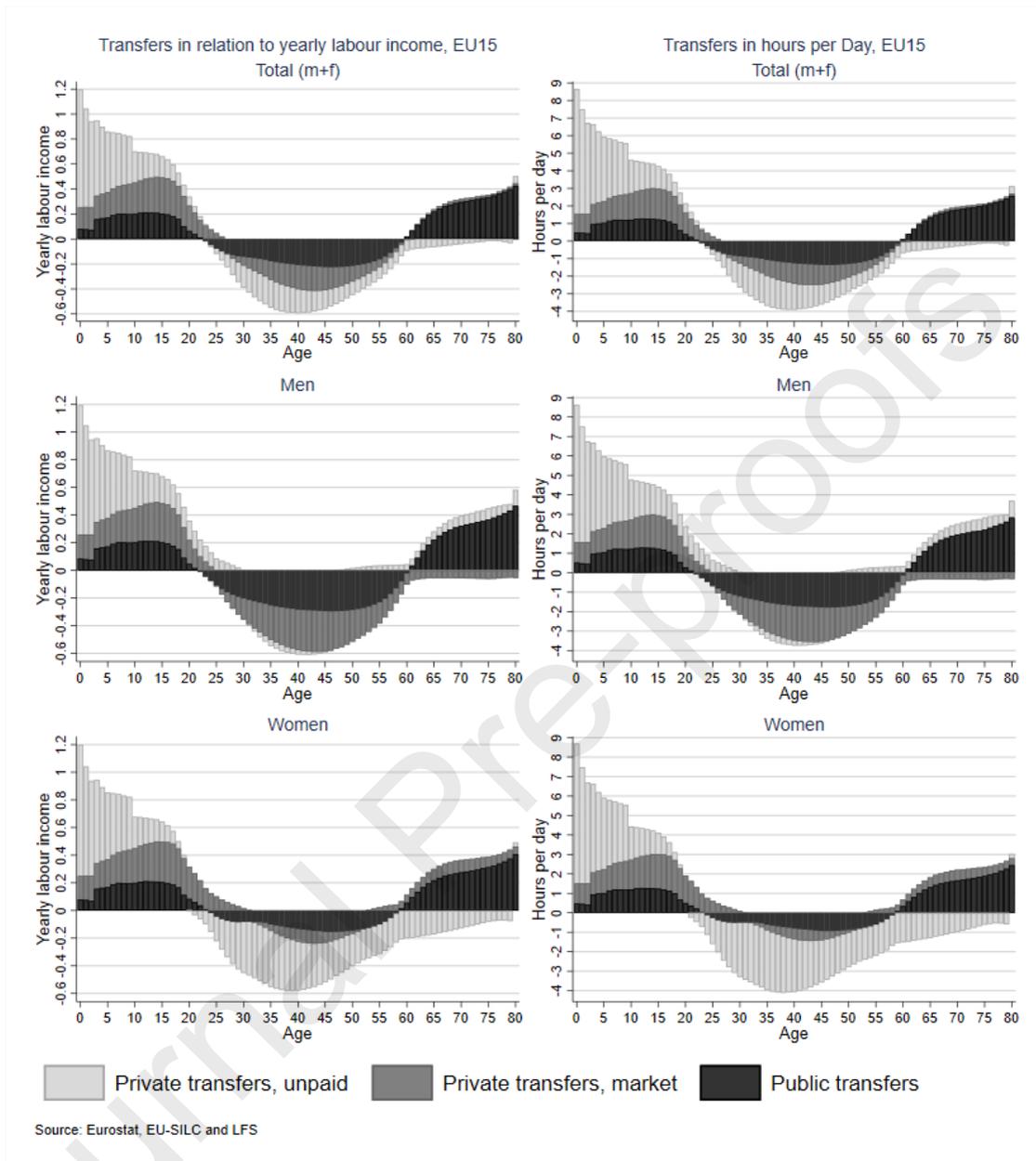


Figure 1: Age-specific net transfers by age and type of transfer in 2010,
simple average of the EU-15

3 Methodology

We generate a gender-specific measure of net transfers that a hypothetical person pays and receives over his or her entire lifetime, given the age-specific transfer pattern in 2010. The measure is based on a thought experiment. It is assumed that the age- and gender-specific patterns of transfers observed in 2010 correspond to the life course patterns of a hypothetical male and female individual. The transfers at each age are weighted with age-specific survival probabilities (Eurostat 2017). To indicate the adjustment for survival probability we use the term *expected transfers*. We then calculate (i) the expected amount of net transfers that men and women receive in childhood, (ii) the expected amount they provide to children, the elderly population, and to their partners during working life, and (iii) the expected amount they receive in old age. As mentioned above, net transfers refer to benefits less contributions. The life stages childhood and old age refer to age groups that are characterised by positive net transfers. Working age is characterised by negative net transfers, i.e. positive net contributions. A similar approach is used in Hammer, Istenič and Vargha (2018), without distinguishing between genders.

The values of total expected net transfers by life stage are calculated as the sum of age-specific net transfers over all age groups belonging to the respective life stage, weighted by survival probability. Total expected net transfers received by an individual of gender g in childhood are denoted by $T_{young,g}$ and calculated as the sum of net transfers per capita at all young ages with positive net transfer benefits (Equation 1). The term $TP_{i,g}$ represents the net public transfer of gender g at age i . The term $TM_{i,g}$ denotes net private market transfers and the term $TNM_{i,g}$ represents net private non-market transfers. Childhood includes all young ages characterised by positive net total transfers. The term l_g refers to the oldest age belonging to childhood for gender g . On average in the EU-15, childhood includes all ages from zero to age 23 for women and age 24 for men. The measure of expected net transfers paid during

working age $T_{work,g}$ is calculated as the sum of net transfers over all age groups characterised by negative net transfers, i.e. positive net transfer contributions (Equation 2). Working age ranges from $l_g + 1$ to $u_g - 1$, with u_g referring to the youngest age group in old age that is characterised by positive net transfers. The simple average of age u_g in the EU-15 is 62 years for men and women. Gender-specific expected transfers in old age $T_{old,g}$ are calculated as sum over all age groups from u_g up to 80 (Equation 3). In European NTAs, transfer data in single ages are only available until age 79. The age group 80 includes the averages for all individuals of age 80 and older. The $S_{i,g}$ stands for the gender-specific survival probabilities until age i , calculated from cross-sectional mortality data. For $i = 80$ the $S_{i,g}$ represent life expectancy at age 80, given the mortality rates of 2010.

$$T_{young,g} = \sum_{i=0}^{l_g} (TP_{i,g} + TM_{i,g} + TNM_{i,g}) * S_{i,g} \quad (1)$$

(total expected net transfers received in childhood, which lasts from age 0 to age l_g)

$$T_{work,g} = \sum_{i=l_g+1}^{u_g-1} (TP_{i,g} + TM_{i,g} + TNM_{i,g}) * S_{i,g} \quad (2)$$

(total expected net transfers paid in working age, lasting from age $l_g + 1$ to age $u_g - 1$)

$$T_{old,g} = \sum_{i=u_g}^{80} (TP_{i,g} + TM_{i,g} + TNM_{i,g}) * S_{i,g} \quad (3)$$

(total expected net transfers received in old age, lasting from age u_g to death)

It is important to keep in mind that these measures do not refer to a certain individual or a member of a certain cohort. Measuring transfers over the whole life would require longitudinal data covering the whole life course of a generation. The measure generated by this thought experiment is designed to provide insights into the gender-specific cross-sectional age pattern of transfers in 2010. It allows a comparison of important characteristics of the intergenerational transfer system across countries.

Regarding the estimates of transfers, it is important to know that for the total population the contributions and benefits of private market transfers and public transfers are not necessarily equal. For private market transfers, the differences between total contributions and benefits are small in most countries and mainly reflect remittances. For public transfers, total contributions and benefits can differ considerably. First, they involve flows between countries. Second, in most countries part of public net benefits is financed through public debt, which increases benefits relative to contributions.

The measurement of transfers relative to labour income corresponds to discounting of nominal age-specific transfers by growth rates of labour income. Similar analysis often applies discount rates that exceed the growth labour income, accounting for time preference of individuals. The discounted values reflect the value of an expected transfer stream for the individual, giving net transfers that are paid or received in near future a higher weight. In the context of generational accounting (Auerbach et al. 1991, Lee et al. 2017), the discounted value of expected transfers is interpreted as the amount of net wealth that is required at birth to generate the same stream of income as the expected net transfers. In this context, the discount rate also captures the risk-free interest that is earned/paid on net wealth. Our focus is on the value/costs of gender-specific transfer streams for society. Men and women differ in the amount of net transfers received in old age, with women having lower pensions but higher life expectancy. These differences would be reduced by discounting, because the transfers received in old age would be discounted most. However, society needs to provide these old age transfers. Differences between men and women should be fully included in our measure. The use of discount rates that reflect time preferences of individuals is therefore not appropriate in our analysis.

However, given that the risk-free interest rate is currently around zero in Europe, the distinct interpretations of expected net transfers over lifetime do not exclude each other. We assume that the low interest rates are not only a phenomenon of expansive

monetary policy but do reflect the time preference of individuals. Thus, the value of net transfers over lifetime can be interpreted as benefit/cost for society, as the present value of the transfer stream for an individual at birth, and as the amount of net wealth that is required at birth to generate an income stream corresponding to the flow of net transfers.

The size and sign of expected transfers depend on the population structure (Lee & Mason 2011, chapter 2). Most private transfers are provided by parents to their own children. In stable declining populations with a fertility below two, expected net transfers benefits in the private system are positive: the transfers provided by two persons in working age are shared among less than two children. By contrast, in Europe, public transfers are predominantly directed at the elderly population. In stable growing populations, the transfer benefits of the elderly population are financed by a large working age population, reducing the burden for each person in working age. Consequently, expected net transfers in the public system are positive in growing populations.

To summarise: a declining population results in positive expected net transfers in the private system, whereas a growing population results in positive expected net transfers in the public system. European countries experienced a baby boom between 1950 and 1970 in most countries, in Spain and Portugal the boom lasted until the 1980s. Consequently, summing the population in the 15 countries, the cohorts around age 45 were the most populous in 2010. The parents of the baby boomers and elderly population in 2010 are characterised by high fertility of about 3 children per women. On the contrary, the baby boomers themselves and the younger cohorts are characterised by below-replacement fertility. The demographic structure with baby boomers in working age corresponds to a growing population for transfers to the elderly and a declining population for transfers to children. Consequently, both expected public and expected private net transfer benefits are predicted to be positive in all analysed countries.

4 Results

Remarkable aspects of the expected net transfers over lifetime are the large positive values for both men and women and the large differences in gender patterns across countries. Detailed estimates of expected net transfers in money units are reported in Table 1. They include information by type of transfers, life stages and gender. To make the monetary values comparable across countries and years, they are measured in country-specific averages of the yearly income of a full-time worker (YL), just as in the previous section. Beside expected net transfers, the table reports the gender-specific age borders for each life stage. Total values of expected net transfers measured in time are provided in Table 2, the details by type of transfers and the age borders are found in Table A1 in the appendix. The expected transfers in time units are measured in terms of time that a full-time employee uses for paid work within a year (TL).⁸ The abbreviation YL refers to income from labour, while the abbreviation TL refers to time use for (paid) labour, both referring to yearly values.

4.1 Net transfers by life stages

The EU-15 simple average of expected transfer benefits in childhood amounts to 17 YL for males and 16 YL for females. The largest component are private non-market transfers with a value of 8/7 YL (men/women), followed by private market transfers with a value of 5/5 YL and public transfers with a value of about 3/4 YL. In terms of time, the total expected transfers received in childhood amount to 23 TL for women and 25 TL for men. Because the structure of transfers received by men and women in

⁸ We assume that the number of hours used for work are 1870 per year. We use the average working hours across European OECD countries, which is 1630 hours (OECD 2019a). 15 percent are added, corresponding to the average amount of time that is used for work-related travel (Eurostat 2019b).

childhood are very similar, the valuation methods for market transfers and non-market transfers have little effect on gender-specific results.

Intergenerational transfers received by children vary considerably across countries. Total expected transfers received in childhood range between 13 YL for men and women in Belgium and France, and more than 21 YL for men in Bulgaria and Poland. These differences suggest that in countries and periods with low fertility, such as in Bulgaria and Poland from about 1995 to 2010 (Eurostat 2018), transfer benefits per child are high because the total transfers to children are shared among comparably fewer individuals (see also Vargha and Donehower 2019).

The gender-specific expected transfer contributions in working age reflect the specialisation of men in paid work and women in unpaid work. In the EU-15, the average value of expected net transfer contributions in working age amounts to 15 YL for men and women. Net contributions to private market transfers amount to 7 YL for men and 0 YL for women, the net contributions to public transfers to 8/4 YL. By contrast, women provide 11 YL non-market net transfers during working age, men zero. Measurement in terms of time, which gives the time used for unpaid work and paid work the same value, results in higher expected transfer contributions of women with 24 TL, compared to men with 20 TL. The higher value for women is due to the much larger amount of time that women use for work activities in some of the countries.

Total expected transfer contributions of men in working age range from 8 YL in Latvia and Lithuania to 20 in Austria and Sweden. These differences are largely driven by public transfers. In Latvia and Lithuania, public dissaving reduced contributions relative to benefits. In contrast Austria's public dissaving is modest, while Sweden is the only country with positive public saving. Furthermore, both Austria and Sweden are characterised by high taxes on labour and a pronounced intergenerational redistribution by the public sector. For women, the total transfer contributions by women range from 11 YL in Germany to 17 YL in Spain and Italy, and 18 YL in

Slovenia. Female contributions are high in countries where women devote a considerably larger amount of time to paid and unpaid work combined. The gender patterns are similar when measured in time units. The higher valuation of non-market transfers result in even more pronounced gender differences in countries with high contributions of women to non-market transfers, such as in Italy, Spain and Slovenia. Nevertheless, in Austria, Germany, Sweden and the UK, women contribute less to the transfer system than men, despite the equal valuation of paid and unpaid work. These countries are characterised by a gender-equal distribution of total working time, i.e. paid and unpaid work, and large gender differences in labour income. The results suggest that unpaid work is less redistributive than paid work, i.e. a larger share of goods and services produced by paid work is redistributed between generations and genders, compared to unpaid work. This result is reasonable and can be illustrated using single households: singles do pay taxes and social contributions, of which a large part is redistributed to other generations. However, they consume all their unpaid work by themselves. All households redistribute via paid work and public transfers. By contrast, the only households with considerable intergenerational redistribution via unpaid work are family households with small children.

Expected net transfer received in old age are much smaller as compared to net transfers received by children and consist almost exclusively of public transfers. In old age, the expected transfers received amount to 5 YL for men and 6 YL for women. In most countries, the total value of expected public transfer received by women in old age is about equal or higher for women compared to men. The results indicate that the public pension system disadvantages women by ignoring intergenerational transfers to children, but that their higher life expectancy might compensate this disadvantage. The valuation in terms of time results in a higher valuation of net non-market transfers from women to men. In time units, women receive the same amount net transfers in old age compared to men (8/8 TL).

On average, men are net contributors to intergenerational transfers from age 25 to age 61, women from age 24 to age 61. The age borders vary considerably across countries. Childhood lasts from birth to age 22 for men in Austria to age 27 for men in Spain. In some countries women become net contributors a little earlier than men, because they are younger when they have children and become net contributors as mothers. The last year of working age is 59 for women in Poland and 66 for men in Sweden. In countries where women provide large amounts of unpaid work, such as Italy and Spain, the age border for entering old age is higher for women compared to men. In countries with moderate levels of unpaid work and large gender differences in labour income, the age border for entering old age is higher for men. This is the case in Austria, Germany, Latvia, Sweden and the United Kingdom.

4.2 Expected net transfers over lifetime

The size of gender-specific expected net transfer benefits over all life stages depend strongly on the valuation method. Measured in monetary terms, they amount to 7 YL for both men and women (Table 1, Column 7 and 8). Measured in terms of time, net transfers over lifetime are considerably higher for men, amounting to 14 TL for men and 8 TL for women. The imbalance between transfers received and transfers paid is remarkable and a consequence of the population structure with baby boom cohorts in working age.

In Austria, Germany, Sweden and the UK, women receive considerably larger expected net transfers than men. The gender differences are the effect of large gender differences in paid work, together the larger redistribution out of paid work activities. By contrast, Lithuania, Latvia, Italy, Spain and Slovenia are characterised by considerably lower net benefits of women compared to men. For Lithuania and Latvia this result is explained with public dissaving, resulting in low net contributions of men to the public transfer system. In Italy, Spain and Slovenia the net contributions of men are lower than for women because of the larger total amount of work done by women.

Table 1: Net transfer benefits by type, life stage and gender measured in relation to the yearly labour income of a full-time worker

	Young		Work		Old Age		All stages		Diff. W-M
	W	M	W	M	W	M	W	M	
EU-15	16	17	-15	-15	6	5	7	7	0
Private market	6	5	0	-7	1	-1	6	-3	
Non-market	7	8	-11	0	-2	1	-5	10	
Public	4	3	-4	-8	6	5	6	0	
Age border	23	24			62	62			
Austria	16	16	-13	-20	7	8	10	5	5
Private market	5	4	1	-8	1	-1	7	-4	
Non-market	7	9	-10	0	-2	1	-5	10	
Public	4	3	-4	-12	8	8	7	-1	
Age border	23	22			60	61			
Belgium	13	13	-13	-15	5	4	5	2	3
Private market	4	3	-1	-5	2	-1	4	-3	
Non-market	5	6	-8	-1	-1	1	-4	6	
Public	3	3	-3	-9	5	4	5	-2	
Age border	23	23			62	62			
Bulgaria	19	21	-15	-12	4	3	8	12	-4
Private market	8	7	1	-8	3	-1	12	-1	
Non-market	8	11	-12	1	-2	1	-6	13	
Public	3	2	-4	-5	3	3	2	0	
Age border	23	25			64	61			
Germany	15	16	-11	-18	7	3	10	1	9
Private market	5	5	1	-7	2	-2	8	-5	
Non-market	7	8	-9	-1	-1	1	-3	8	
Public	3	3	-3	-9	5	5	5	-2	
Age border	23	24			61	64			
Estonia	17	17	-14	-15	5	4	7	7	1
Private market	6	5	0	-6	0	0	7	-1	
Non-market	7	8	-10	0	-1	1	-5	8	
Public	4	4	-5	-8	6	3	6	-1	
Age border	22	23			63	60			
Spain	18	19	-17	-10	4	7	5	16	-12
Private market	5	5	1	-7	2	-2	8	-4	
Non-market	9	11	-17	2	-2	3	-10	16	
Public	3	3	-1	-5	5	6	7	4	
Age border	25	27			67	61			
Finland	14	14	-15	-16	9	7	8	5	3
Private market	5	5	-2	-6	1	-1	4	-2	
Non-market	5	6	-9	-1	-1	1	-4	6	
Public	3	3	-4	-9	9	7	8	1	
Age border	23	23			62	62			

Calculations of net transfer benefits by life stage are based on European NTA data (Isteneič et al. 2016) and life table data (Eurostat 2017)

Table 1 (continued): Net transfers by type, life stage and gender measured in relation to the yearly labour income of a full time worker

	Young		Work		Old Age		All stages		Diff. W-M
	W	M	W	M	W	M	W	M	
France	13	13	-14	-15	7	6	6	4	2
Private market	4	4	-1	-7	1	-1	5	-4	
Non-market	5	6	-10	0	-1	1	-6	8	
Public	3	3	-3	-9	7	6	7	1	
Age Border	23	23			66	61			
Italy	17	18	-17	-15	4	8	4	11	-7
Private market	6	5	1	-8	1	-2	8	-4	
Non-market	8	10	-15	3	-2	3	-9	16	
Public	3	3	-4	-10	5	7	5	0	
Age Border	25	26			63	60			
Lithuania	16	18	-15	-8	5	3	7	13	-6
Private market	7	6	-2	-5	1	0	6	1	
Non-market	6	8	-10	1	-1	1	-5	9	
Public	4	3	-3	-4	5	3	6	2	
Age Border	23	25			62	59			
Latvia	16	17	-12	-8	3	3	7	12	-5
Private market	6	5	-1	-6	1	0	6	0	
Non-market	6	8	-8	1	-3	0	-5	10	
Public	4	4	-2	-4	5	3	7	3	
Age Border	23	24			59	60			
Poland	20	21	-16	-18	8	6	12	8	3
Private market	6	6	0	-9	2	0	8	-4	
Non-market	9	11	-13	0	-2	1	-6	12	
Public	4	3	-3	-8	8	5	9	0	
Age Border	23	24			64	60			
Sweden	13	14	-15	-20	8	6	7	0	7
Private market	4	4	-2	-6	1	-1	4	-3	
Non-market	5	6	-8	-2	0	1	-3	5	
Public	4	4	-5	-12	7	6	6	-2	
Age Border	24	23			61	66			
Slovenia	19	20	-18	-14	7	7	8	14	-6
Private market	7	6	-3	-6	1	-1	5	0	
Non-market	8	9	-10	0	-3	2	-5	11	
Public	5	4	-5	-8	8	7	7	3	
Age Border	24	25			61	59			
United Kingdom	16	17	-14	-19	8	5	10	3	7
Private market	5	5	1	-10	2	-1	8	-6	
Non-market	8	9	-13	-1	-1	1	-6	8	
Public	3	3	-2	-8	7	6	8	1	
Age Border	21	24			61	64			

Calculations of net transfer benefits by life stage are based on European NTA data (Istenič et al. 2016) and life table data (Eurostat 2017)

Table 2: Net transfer benefits by type, life stage and gender measured in relation to the yearly time used for paid work by a full-time worker

	Young		Work		Old Age		All stages		Diff. W-M
	W	M	W	M	W	M	W	M	
EU-15	24	26	-24	-20	8	8	9	14	-5
Austria	25	26	-22	-27	9	12	11	12	0
Belgium	20	20	-22	-21	7	7	5	6	-1
Bulgaria	26	29	-21	-16	6	5	11	18	-7
Germany	23	24	-19	-24	9	5	13	5	8
Estonia	25	27	-24	-20	7	6	9	13	-5
Spain	26	28	-28	-12	6	11	4	27	-23
Finland	21	22	-24	-22	13	10	9	10	-1
France	20	21	-24	-21	9	9	5	9	-4
Italy	27	29	-30	-19	5	12	2	22	-20
Lithuania	24	26	-23	-11	7	4	7	20	-12
Latvia	23	25	-18	-11	4	4	9	19	-10
Poland	28	29	-23	-24	11	8	15	13	2
Sweden	21	22	-24	-28	11	9	8	2	6
Slovenia	29	30	-29	-18	8	11	8	22	-14
UK	23	24	-22	-26	11	7	12	5	6

Calculations of net transfer benefits by life stage are based on European NTA data (Istenič et al. 2016) and mortality data (Eurostat 2017)

The gender-specific expected net transfers in money units are plotted in Figure 2. The expected net transfers for men are plotted to the left of the zero line, those of women to the right. The total (men and women) net transfers are represented by the total length of the bars, adding the values for men and women. Countries are ordered according to the total size of expected net transfers. The plot shows that the values for men determine the ranking of the countries. The countries at the bottom are those with the largest total net transfers and the largest values for men. The countries with the lowest transfer net transfers are those with men and women doing similar amounts of total work. In this group of countries we observe smaller net transfers for men, both relative to the values for women and in absolute terms. Explanations are the lower valuation of unpaid work and the high share of paid production distributed across generations and genders. In Sweden the net contributions of men are positive, financing part of the net transfers of women.

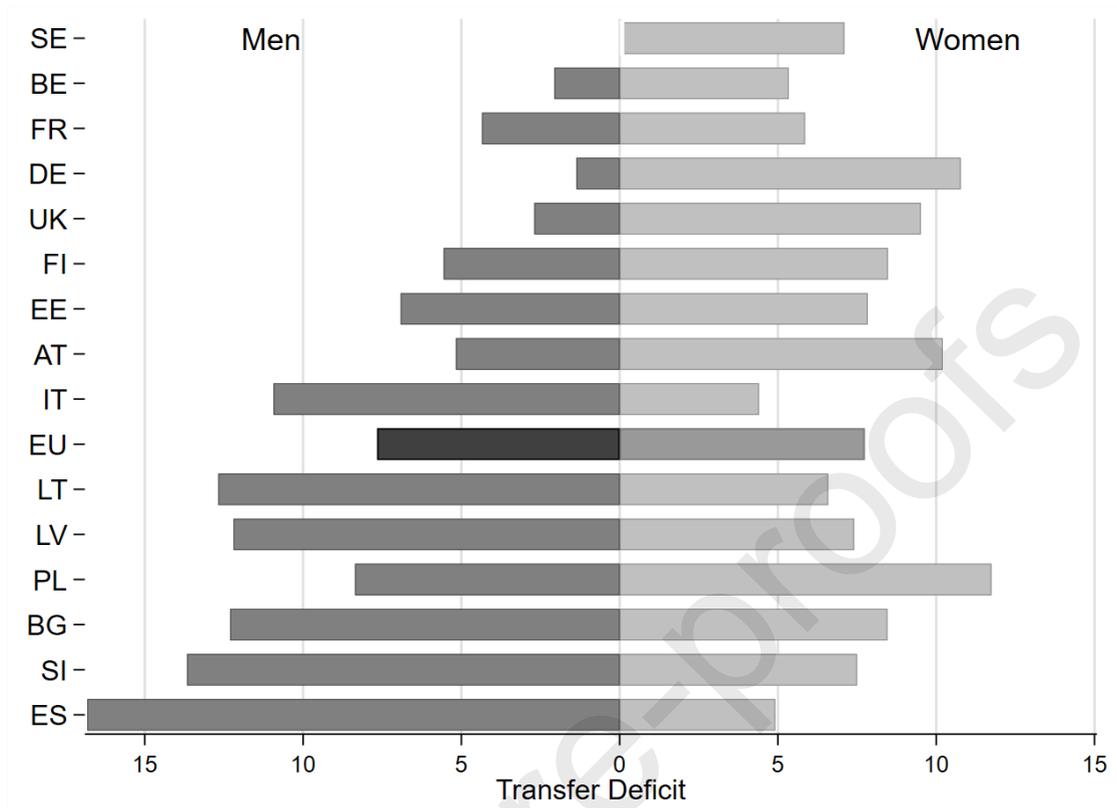


Figure 2: Expected net transfers over lifetime by country and gender 2010

4.3 A decomposition of public transfers in old age

Women receive higher public transfers in old age due to higher life expectancy. On the one hand, pension rules disadvantage women by ignoring their contributions to non-market transfers. This results in a lower level of yearly pensions for women. On the other hand, women have a considerable advantage through the higher life expectancy in combination with a retirement age similar to men or even lower than that. Therefore, women are net receivers of public old-age benefits over a much longer period. In the previous section it was shown that these two types of inequalities largely balance out, so that total transfers received in old age are similar for men and women in most countries.

We decompose the public net transfers received in old age into a level and a duration component. Table 2 shows the results. To define the age groups representing old age we rely on the sign of public net transfers. Women become net receivers of public transfer benefits between age 57 in Slovenia and age 64 in Sweden. For men the age is slightly higher and ranges from age 59 in Lithuania, Latvia, Poland and Slovenia to 65 in Sweden.

The average number of years spent as net beneficiary in old age is considerably higher for women in all countries. For women, the expected number of years receiving net transfer benefits in old age ranges from slightly under twenty years in Bulgaria and Sweden to more than 25 in Austria, France, Poland, Lithuania, Spain and Slovenia. For men the expected number of years spent as net beneficiary ranges from a little less than 12 in Lithuania and Latvia to over 19 in Spain and Italy. In the EU-15, women are net receivers of public benefits for about seven years longer than men, on average. A particularly large gender gap in the duration of the retirement period can be found in Lithuania and Latvia, reflecting the large differences in the life expectancy between men and women.

The public transfer benefits are considerably lower for women in many of the analysed countries. In Austria the average yearly pension of men amounts to 44 per cent of YL, the average pension of women to 32 per cent of YL. Large gender differences of more than 6 per cent of YL and more are also found in Germany, Spain, Italy and Lithuania. However, the higher female life expectancy compensates for the lower yearly benefits. With the exception of Austria, total old-age benefits are higher for women in all countries.

Table 3: Decomposition of net public benefits in old age in a level component and a duration component

	Age border	Total benefits in YL	No. years	Yearly benefits in % of YL	Age border	Total benefits in YL	No. years	Yearly benefits in % of YL
EU 16					France			
Women	59	6	22.9	28	59	7.2	25.6	28
Men	61	5	15.8	31	60	6.0	18.8	32
Austria					Italy			
Women	58	7.9	25	32	60	5.8	24.2	24
Men	60	8.2	18.3	44	60	6.2	19.7	31
Belgium					Lithuania			
Women	59	5.0	23.7	21	59	5.3	20.4	26
Men	62	4.2	16.4	26	59	2.3	11.8	20
Bulgaria					Latvia			
Women	59	3.6	19.1	19	58	4.8	20.5	23
Men	60	3.1	12.7	24	59	2.9	11.7	24
Germany					Poland			
Women	60	5.3	22.5	24	55	8.4	25.3	33
Men	63	4.6	15.5	30	59	4.7	14.7	32
Estonia					Sweden			
Women	60	6.4	20.8	31	64	7.0	19.6	35
Men	61	3.4	12.2	28	65	5.2	15.3	34
Spain					Slovenia			
Women	59	5.5	25.8	21	57	8.1	25.4	32
Men	60	5.9	19.4	31	59	6.1	17.8	34
Finland					UK			
Women	61	9.2	22.3	41	60	7.2	22.5	32
Men	62	6.6	15.9	42	62	5.9	17.2	34

Age border: youngest age of the old age group with positive average public net benefits.

Total benefits: total public net benefits expected in old age. Product of columns *yearly benefits* and *no. years*.

No. years: number of years a person can expect to be a net beneficiary of the public transfer system.

Yearly benefits: average yearly benefits in % of the income of a full-time worker.

Source: Calculations of net transfer benefits by life stage are based on European NTA data (Isteneič et al. 2016) and mortality data (Eurostat 2017).

5 Conclusion

In this paper we estimated the gender-specific net benefits of intergenerational transfers by life stages and over a lifetime, based on age- and gender-specific transfer patterns in 2010. The analysis considers all relevant types of current intergenerational transfers, including public transfers, private market transfers and non-market transfers, consisting of services produced by unpaid work. Not included are capital transfers, such as bequests. Furthermore, it accounts for gender differences in life expectancy.

Several gender patterns of intergenerational transfers are common to all countries. Because of their higher employment rates and higher labour income, men contribute more to the public transfer system and finance a higher share of the consumption needs of children. In contrast, women contribute more to non-market transfers by providing unpaid services to children and other household members.

We used two different approaches for valuing unpaid work in relation to paid work. When using the average net hourly wage to value non-market transfers, we find that lifetime transfers across the EU-15 are gender-balanced on average. Using an alternative measure of total intergenerational transfers in terms of time, we find that women contribute considerably more of their time to the provision of intergenerational transfers than men, on average. The results differ, because the valuation in net hourly wages gives one hour devoted to unpaid work and non-market transfer a lower value than one hour devoted to paid work. The measurement in terms of time values the time used for unpaid work and paid work equally.

In Spain, Italy and Slovenia, women contribute considerably more to intergenerational transfers over their lifetime, compared to men. The explanation is the considerably larger amount of time devoted to work (including paid and unpaid work) of women in these countries. In Lithuania and Latvia women contribute more than men, because in 2010 men contributed particularly little to the public transfer system. In general, paid work in Europe is more redistributive than unpaid work in the sense, that one hour of

paid work results in higher transfers than one hour of unpaid work, on average. Austria, Germany, Sweden and the UK, for example, are characterised by gender equality in total time devoted to paid and unpaid work. Because of the much higher involvement of men in more redistributive paid work in these countries, we find considerably higher net transfer contributions of men, compared to women.

In several countries the public transfer benefits in old age are characterised by considerable gender-differences. Since pension calculations are based on income and the contributions to the public transfer system, women receive lower yearly net public benefits than men in many countries. However, because of the higher female life expectancy and their longer retirement period, the total net public benefits received in old age are higher for women in most countries. Exceptions are Austria, Italy and Spain. Given the age-specific net transfers and mortality rates observed in 2010, the average number of years that men live as net beneficiaries of public transfers is about 16 in the analysed countries. Women, however, can expect to live 23 years as net beneficiaries. The gender gap in the duration of the retirement period is particularly large in Lithuania and Latvia, reflecting the large differences in life expectancy between men and women in these countries.

An important aspect of gender differences in pensions cannot be analysed utilising NTA data: gender differences in pensions partly reflect differences between couples with and without children, since the lower pensions of women are largely a consequence of lower labour market participation and lower income of mothers. Because resources are shared among couples, a large gender gap in yearly pensions also reflects a lower income of parents in old age, compared to childless couples. The degree to which the gender gap in yearly pensions reflects a family penalty remains a topic for future research.

6 Acknowledgements

We acknowledge the support of the Austrian Federal Ministry of Education, Science and Research within the Joint Programming Initiative *More Years, Better Lives*. Furthermore, the authors received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under Grant Agreement No. 613247.

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8 Appendix

Table A1: Net transfer benefits by type, life stage and gender measured in relation to the yearly time used for paid work by a full-time worker

	Young		Work		Old Age		All stages		Diff.
	W	M	W	M	W	M	W	M	W-M
EU-15	24	26	-24	-20	8	8	9	14	-5
Private market	7	7	0	-9	2	-1	9	-4	
Non-market	12	14	-19	0	-2	2	-9	16	
Public	5	4	-4	-11	9	7	9	1	
Age border	23	24			63	61			
Austria	25	26	-22	-27	9	12	11	12	0
Private market	7	6	2	-10	2	-1	10	-6	
Non-market	13	16	-18	0	-4	2	-9	18	
Public	5	5	-6	-17	11	12	10	0	
Age border	23	22			61	61			
Belgium	20	20	-22	-21	7	7	5	6	-1
Private market	5	5	-2	-7	2	-2	6	-4	
Non-market	10	11	-16	-1	-2	2	-8	12	
Public	5	4	-4	-12	7	6	7	-2	
Age border	23	23			64	62			
Bulgaria	26	29	-21	-16	6	5	11	18	-7
Private market	10	10	2	-11	4	-1	16	-1	
Non-market	12	16	-18	2	-3	1	-9	19	
Public	4	3	-5	-7	4	4	3	0	
Age border	22	25			65	61			
Germany	23	24	-19	-24	9	5	13	5	8
Private market	7	7	1	-10	3	-3	11	-7	
Non-market	12	14	-16	-1	-1	2	-5	14	
Public	4	4	-4	-13	8	7	8	-2	
Age border	23	25			62	63			
Estonia	25	27	-24	-20	7	6	9	13	-5
Private market	8	7	1	-9	0	0	9	-1	
Non-market	12	14	-19	0	-2	1	-9	15	
Public	5	5	-6	-11	9	5	8	-1	
Age border	21	23			64	60			
Spain	26	28	-28	-12	6	11	4	27	-23
Private market	7	7	1	-9	2	-3	11	-5	
Non-market	14	17	-28	4	-3	5	-16	26	
Public	5	4	-1	-7	6	8	10	6	
Age border	25	27			69	60			
Finland	21	22	-24	-22	13	10	9	10	-1
Private market	7	7	-2	-8	1	-1	5	-3	
Non-market	10	11	-16	-2	-1	2	-8	11	
Public	5	4	-6	-12	13	10	12	2	
Age border	22	23			63	62			

Calculations of net transfer benefits by life stage are based on European NTA data (Isteneič et al. 2016) and mortality data (Eurostat 2017)

Table A1 (continued): Net transfer benefits by type, life stage and gender measured in relation to the yearly time used for paid work by a full-time worker

	Young		Work		Old Age		All stages		Diff.
	W	M	W	M	W	M	W	M	W-M
France	20	21	-24	-21	9	9	5	9	-4
Private market	6	5	-1	-9	2	-2	6	-6	
Non-market	10	12	-18	0	-3	2	-11	14	
Public	4	4	-5	-11	10	9	10	1	
Age Border	22	24			69	61			
Italy	27	29	-30	-19	5	12	2	22	-20
Private market	8	7	2	-11	1	-2	11	-6	
Non-market	14	18	-28	4	-2	6	-16	28	
Public	5	4	-4	-13	6	9	7	-1	
Age Border	25	27			63	60			
Lithuania	24	26	-23	-11	7	4	7	20	-12
Private market	9	9	-3	-7	2	-1	8	1	
Non-market	10	13	-16	1	-2	2	-9	15	
Public	5	5	-4	-5	7	3	8	3	
Age Border	23	25			63	59			
Latvia	23	25	-18	-11	4	4	9	19	-10
Private market	8	7	-1	-8	2	0	8	0	
Non-market	10	12	-14	2	-4	1	-8	15	
Public	6	5	-3	-6	6	4	9	4	
Age Border	23	24			60	60			
Poland	28	29	-23	-24	11	8	15	13	2
Private market	9	8	0	-13	2	-1	11	-5	
Non-market	14	17	-20	-1	-3	2	-9	18	
Public	5	5	-4	-11	11	7	12	0	
Age Border	23	24			64	60			
Sweden	21	22	-24	-28	11	9	8	2	6
Private market	6	6	-2	-8	1	-1	5	-3	
Non-market	9	11	-15	-4	0	2	-5	9	
Public	5	5	-7	-16	10	8	8	-3	
Age Border	23	23			63	65			
Slovenia	29	30	-29	-18	8	11	8	22	-14
Private market	9	9	-4	-8	2	-1	7	0	
Non-market	14	16	-19	0	-4	3	-9	18	
Public	6	5	-6	-11	10	9	10	4	
Age Border	24	26			62	59			
United Kingdom	23	24	-22	-26	11	7	12	5	6
Private market	7	6	1	-13	3	-2	10	-9	
Non-market	12	13	-20	-1	-1	1	-9	13	
Public	5	4	-3	-12	10	8	11	1	
Age Border	21	24			62	64			

Calculations of net transfer benefits by life stage are based on European NTA data (Isteneič et al. 2016) and mortality data (Eurostat 2017)

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