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## The Gender Dimension of Intergenerational Transfers in Europe

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# WORKING PAPERS

07/2019

## THE GENDER DIMENSION OF INTERGENERATIONAL TRANSFERS IN EUROPE

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## Abstract

This paper analyses the gender dimension of intergenerational transfers in European countries using National Transfer Accounts data on age- and gender-specific transfers in 2010. We combine data on public and private transfers with demographic information to estimate gender-specific net transfer benefits by life stage and over the whole life course. Furthermore, public old-age benefits are decomposed into yearly averages as well as the number of years that individuals can expect to be net recipients of public transfers. The results show remarkable differences between genders, especially in old age. Yearly net public benefits in old age are considerably smaller for women. However, the total public benefits over the whole retirement period are higher for women due to their higher life expectancy.

## Keywords

Gender inequalities, intergenerational transfers, National Transfer Accounts, unpaid work.

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# The Gender Dimension of Intergenerational Transfers in Europe

Bernhard Hammer, Sonja Spitzer, Lili Vargha, Tanja Istenič

## 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.<sup>1</sup> 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. Consequently, they pay a higher share of income taxes and thereby provide a larger share of public transfers to the elderly generation. Based on the EU Statistics on Income and Living Conditions (EU SILC), Hammer, Prskawetz and Freund (2015) estimate that in 2010 men generated about two-thirds of total labour income in Austria, Germany, Italy and the UK. In Slovenia, the country with the highest contribution of women to total labour income, men still generate about 55 per cent of total labour income. Because of the importance of taxes on labour and social contributions, the estimates are a good approximation of gender-specific contributions to public transfers. In Austria of 2015, for example, women generated about one-third of income from employment, and paid about one-third of taxes on labour and social contributions, largely consistent with estimates from EU-SILC (Statistik Austria 2019). Because of their higher income, men also finance a larger share of the consumption needs of children.

Women provide most of the intergenerational transfers in form of unpaid household work and childcare. Compared to men, women carry out a considerably larger amount of unpaid work, with large differences across countries (e.g. Eurostat 2018). Because these activities constitute important intergenerational transfers, women are net providers of unpaid services to children and other adult household members. Thus, women produce considerably more unpaid services for other household members than they themselves

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<sup>1</sup> 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, consumption goods and monetary transfers provided to children, publicly financed education, pensions, health and long-term care.

receive from the other 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. Their results show that in all analysed countries the net transfers of men in form of unpaid work are close to zero: while men do devote time to their children, they also consume household work that is carried out by their female partners. Transfer contributions in form of unpaid work are found to be particularly large for women in Italy and Spain, corresponding to about 4 hours of unpaid work throughout the entire working age. In both countries men are on average net recipients of transfers in form of unpaid work throughout their life.

The gender roles in the provision of intergenerational transfers are the main determinants for lower pensions of women. Income-based contributions to the public pension system are awarded with pension entitlements, while the provision of unpaid household services and of care do not entitle to pension rights, or only to a very limited degree. For women having a child is usually associated with an increase of unpaid work, a reduction of paid work, lower contributions to the pension system and consequently lower pensions (e.g. Blau and Kahn 2017 on the gender pay gap). Bettio, Tinios and Betti (2013) compare different measures of the gender gap in pensions in the EU-27. They find that the average pension of women aged 65+ was 39 per cent below the average pension of men in 2009. In general, the pension gap is found to be lower in most of the former socialist countries, with values below 20 per cent. During socialism the participation of women in paid work was encouraged, resulting in less differences between the careers of men and women. By contrast, in Luxembourg, Germany, Greece, Ireland, Spain and Malta the gap 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 2019). At the same time women have a substantially higher life expectancy. In the European Union, the difference between male and female life expectancy at age 60 is about four years (Eurostat 2019). The higher female life expectancy, together with lower retirement ages, results in a considerably longer period with public net transfer benefits for women in old age. This makes a difference if one attempts to evaluate if men or women receive more public transfers. For example, public per-capita spending on health care provision for elderly persons is considerably higher for men than for women. At age 80, the gap amounts to about 3 per cent of GDP per capita (European Commission, 2018). However, according to the System of Health Accounts (OECD, 2011), the total public expenditure on health care provision for women is higher than the spending for men. The difference between the two sources can be explained by the higher share of women in the population, especially in older age groups. 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.

In this paper we measure and analyse gender differences in transfer contributions and benefits at each life stage and over lifetime for 16 European countries. In particular, we

address the following two research questions: (1) How large are gender differences in net intergenerational transfers over lifetime when all type of transfers are considered, including transfers in form of unpaid work? (2) Does the public transfer system advantage men or women when life expectancy is taken into account? It is the first paper that uses the comprehensive European National Transfer Accounts data for analysing gender-specific intergenerational transfers.

The paper contributes to the discussion about gender equality in the transfer system (a) by including estimates of transfers in form of unpaid work and (b) by quantifying the effect of differences in life expectancy on gender differences in transfers over lifetime. It is important to explore gender inequalities considering differences in the level and duration of public old-age benefits. 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.

Information about gender roles and inequalities between genders is essential in understanding economic choices of individuals and for designing gender-equal and sustainable transfer systems. The gender gap in yearly public benefits and pensions is also an indicator of inequalities between families and childless persons, since the gender gap in wages and pensions is essentially a consequence of reduced paid work due to care responsibilities for children. Since most couples share their economic resources (Bonke 2015; Groß, Schneebaum and Schuster 2017), the gender differences in individual pensions also reflect differences in pensions between couples who have children and those who do not. A large gender gap in public old-age benefits may set incentives for not having children. This is insofar problematic as the public transfer system as a whole requires these children as net contributors in the future (Hammer et al. 2018).

## 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 the 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 2013). 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 of monetary transfers and of goods and services bought on the market that are provided to other household members, mostly to children; and (iii) private non-market transfers, which consist mainly of services produced by unpaid work for other household members.

NTAs and NTTAs together provide comprehensive information on public and private transfers between age groups and genders. 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. So far, most research using both NTAs and NTTAs focuses on single countries, namely on 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.

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 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). Because of the lower-than-average wage rates used for the valuation of unpaid work, the monetary value of female contributions to intergenerational transfers is lower than for men. Also Italy and Spain are characterised by a much lower labour income of women, compared to men. However, because of high levels of female unpaid work in these two countries, women devote in total considerably more time to work than men. Consequently, 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.<sup>2</sup> A detailed description of the

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<sup>2</sup> Information about AGENTA can be found at [www.agenta-project.eu](http://www.agenta-project.eu). European National Transfer Accounts data can be accessed at [www.wittgensteincentre.org/ntadata](http://www.wittgensteincentre.org/ntadata).

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.<sup>3</sup> Additionally, NTTAs for Austria in 2008 have been calculated by the authors. 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 economy as a whole 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. This includes in particular collective public consumption, private consumption and private asset income. For collective public consumption the NTA methodology assumes each individual to consume 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 equivalence scale affects the estimates of the intra-household transfers to children, because the transfer estimates 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. The approach could bias the gender-specific estimates by underestimating income and transfer contributions of women and overestimating those of men. However, Groß et al. (2017) find for Austria that most households share assets equally,

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<sup>3</sup> 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.



but 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 age- and gender-specific estimates in NTTAs are exclusively based on time use data. Since most of unpaid work is not included in national accounts or administrative data, time use surveys are often the only source of empirical information. The age- and gender-specific estimates of non-market transfers captured in NTTAs also require assumptions. 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 who qualify as care consumers. For general household services it is not possible to identify the amount that certain household members consume. To estimate consumption, NTTAs rely on the assumption that each household member profits equally from these services. NTTAs estimate age-specific consumption of household services by adding the time use for unpaid production of all household members and distributing it to all of them in equal shares. Intergenerational transfers in the form of unpaid work are calculated as difference between consumption and income.

## **2.2 Combining Paid and Unpaid Work**

The combination of non-market transfers with transfers measured in terms of market prices requires a monetary valuation of unpaid work. European NTAs refer to the year 2010 and are measured in Euro, while NTTAs refer to the country-specific year of the time use survey and are measured in minutes per day. It requires two adjustments to make NTAs and NTTAs comparable. First, to make the time use data representative for 2010, it is assumed that the structure of time use in the survey year also represents the structure of time use in 2010. Second, NTTAs are transformed into monetary units by applying a hypothetical wage for unpaid household work. The valuation of unpaid work is a controversial topic (e.g. 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? Gross or net wages? This issue of how to treat unpaid work is discussed and evaluated in Poissonnier and Roy (2017). They 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. So far there is no consensus in the research community which wage rate is more appropriate. In our paper we rate one hour of household production by the average hourly net wage of a full-time worker. The choice of average wage rate facilitates cross-country comparability, as it can be calculated from our NTA data source, together with estimates of total working hours in the economy. We find net wages more appropriate, since there is no flow of taxes and social contributions associated with unpaid work. After transforming NTAs and NTTAs into the same units we combine the two datasets.

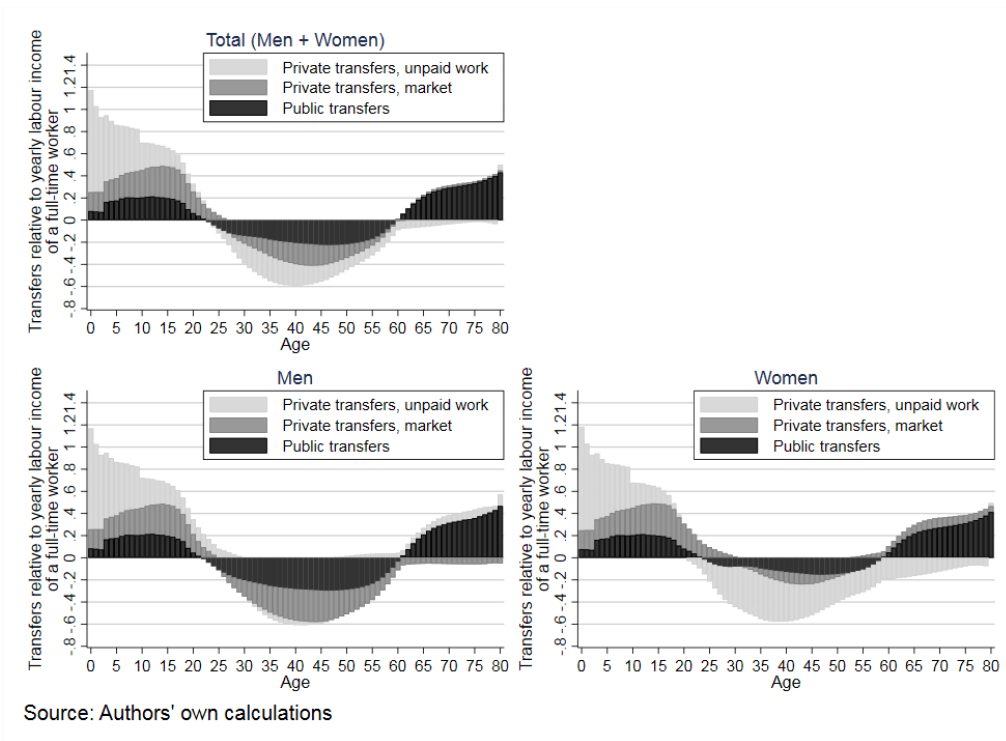
### 2.3 Overview: Age- and Gender-Specific Transfers in Europe

We standardise the transfer measure to make the values of transfers comparable across countries. In this paper transfers 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).

The most important type of transfers for children is the time of their parents. For elderly persons the most important type of transfers are public transfers. Figure 1 plots age-specific per-capita averages of net transfers by type and gender in the EU-15. Public transfers are in black, private market transfers in dark-grey and private non-market transfers in light-grey colour. 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. There are some general patterns in the transfer flows between generations that 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 non-market transfers. At age 0 and age 1 the yearly value of the transfers amounts to 1.2 YL per capita. Total transfers see a decrease with increasing 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. The population of age 60 and older are net receivers of intergenerational transfers, mostly in terms of public transfers. In some countries net transfers from the elderly population to the younger generations are provided in the form of unpaid work.

Men provide most of the public transfers, women the transfers in form of services produced by unpaid work. The lower panels in Figure 1 show the age-specific transfers 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 differences for the genders. 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. All types of transfers considered, the net transfer payments in prime working age are quite similar between men and women with a value between 0.4 YL and 0.6 YL. Yearly public transfers in old age are somewhat smaller for women than for men. Also in old age there are private transfers between genders: 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 individual pays and receives over his or her entire life time, 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. Furthermore, it is assumed that these individuals face mortality rates corresponding to the age- and gender-specific rates observed in 2010 (Eurostat 2017). To indicate the adjustment for mortality the term expected transfers is used. We then calculate the expected average amount of transfers that men and women receive in childhood, the expected average amount they transfer to children, the elderly population and to their partners during working life, and the expected amount they receive in old age. The life stages childhood and old age are characterised by positive net transfer benefits. Working age is characterised by negative net transfer benefits, i.e. positive net contributions. A similar approach is used in Hammer, Istenič and Vargha (2018), without distinguishing between genders.

The values of total net expected transfers by life stage are calculated as the sum of age-specific net expected transfers over all age groups belonging to the respective life stage. Total net transfers received by an individual of gender  $g$  in childhood are denoted by

$T_{young,g}$  and calculated as the sum of expected transfers per capita at all young ages with positive net transfer benefits (Equation 1). The term  $TP_{i,g}$  represents the net public transfer benefits of gender  $g$  at age  $i$ . The term  $TM_{i,g}$  denotes private market transfers and the term  $TNM_{i,g}$  represents private non-market transfers. Childhood includes all young ages characterised by positive net transfer benefits. 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 24. The measure of transfers paid during working age  $T_{work,g}$  is calculated as the sum of net transfer contributions over all age groups characterised by 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 benefits. The simple average of age  $u_g$  in the EU-15 is 62 years for men and women. Gender-specific total transfers in old age  $T_{old,g}$  are calculated as sum over all age groups from  $u_g$  up to 100 (Equation 3). Since transfer data in NTAs are only available until age 80+, the age-specific value at age 80 is used for all older age groups. The  $S_{i,g}$  stands for the gender-specific survival probabilities until age  $i$ , calculated from cross-sectional mortality data. For  $i = 100$  the  $S_{i,g}$  represent life expectancy at age 100, 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  $u_g - 1$ )

$$T_{old,g} = \sum_{i=u_g}^{100} (TP_{i,g} + TM_{i,g} + TNM_{i,g}) * S_{i,g} \quad (3)$$

(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 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 population as a whole, the contributions and benefits of private market transfers and public transfers are not necessarily equal. For private 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.

## 4 Results

Remarkable aspects of the transfers over lifetime are the large net benefits for both men and women and the large differences in gender patterns across countries. The large net benefits are a consequence of the baby-boomer cohorts still being in working age and therefore acting as net contributors to the transfer system. This provides for a temporarily balanced system with comparably small per-capita contributions and comparably generous per-capita benefits. Detailed estimates of transfer net benefits by type of transfers, life stages and gender are reported in Table 1. 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 net transfers, the table reports the gender-specific age borders for each life stage.

### 4.1 Net Transfers by Life Stages

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 influence the net transfers that are received and paid during each life stage. 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.

The most important transfer components for children are services produced by unpaid work of their parents. The amount of transfers received during childhood is remarkable: the simple average of transfers received in childhood amounts to 17 YL for males and 16 YL for females. The largest component of net transfers to children is 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. The reason for the slightly lower value of non-market transfers for women is their higher contribution to unpaid household work, reducing the net benefits. Men, in return, enter the labour market earlier, resulting in higher net contributions to public transfers. Intergenerational transfers received by children vary considerably across countries. Total net transfers received in childhood range between 13 YL for men and women in Belgium and more than 21 YL for men in Bulgaria and Poland. These differences suggest that in countries and periods with low fertility, such as 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).

In the EU-15, the average value of transfers paid in working age amounts to 15 YL for men and women. The gender-specific values by type of transfers reflect the gender specialisation of men in paid work and women in unpaid non-market work. Net contributions to private market transfers amount to 7 YL for men and 0 YL for women, the net contributions to public transfers to 8/3 YL, reflecting the higher contributions of men. However, average net contributions of men to non-market transfers are zero over the working life. For women they amount to 11 YL. Country-specific values differ considerably. Transfer contributions of men in working age range from 8 YL in Latvia and Lithuania to 20 in Austria and Sweden. The differences are largely driven by differences in 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, Austria and Sweden are characterised by high taxes on labour and a pronounced intergenerational redistribution by the public sector. The values of transfer contributions by women range from 11 YL in Germany to 17 YL in Spain and Italy, and 18 YL in Slovenia. The high value for Slovenia is a consequence of the high female labour force participation and comparably high contributions to private market transfers and public transfers by women, together with high involvement in unpaid work and non-market transfers. In Spain and Italy, it is the large amount of time devoted to unpaid work that explains these high values.

Male transfer contributions compared to female contributions are high in countries characterised by large net public contributions in working age and moderate non-market contributions. Examples are Austria, Germany, Sweden and the UK. 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 male contributions, relative to female ones, are low in countries where women devote a considerably larger amount of time to paid and unpaid work combined, such as Italy, Spain and Slovenia.

Net transfer received in old age are much smaller as compared to children and consist almost exclusively of public transfers. In old age, the transfers received amount to 5 YL for men and 6 YL for women. The most important explanation for the higher value for women is their higher life expectancy. The net transfer benefits in old age are mostly in the form of public transfers. For women the total value of net transfer benefits in old age ranges from 3 YL in Latvia to 9 YL in Finland. For men the range is between 3 YL in Latvia, Lithuania, Germany and Sweden and 8 YL in Austria. Bulgaria, Latvia and Lithuania are characterised by comparably small public transfers to the elderly population. In Germany there are considerable private market transfers from men to women, resulting in low net transfers benefits for 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. In most countries, the total value of public transfer

received by women in old age is about equal or higher for women compared to men. Non-pension components of public transfers, together with the higher life expectancy, result in equal or higher benefits for women compared to men. In most of the countries the difference is considerable: in Estonia, Lithuania and Poland it is about 3 YL. Some of the former Socialist countries are characterised by a remarkably lower life expectancy of men compared to women. These differences are reflected in the differences in old-age net benefits.

## **4.2 Net Transfers over Lifetime**

Average net transfers over all life stages vary little between genders in the EU-15. They amount to 7 YL for both men and women (Table 1, Column 7 and 8). The imbalance between transfers received and transfers paid is remarkable, however. It is a result of the age structure of the population with a bulge in working age that explains the small contributions in relation to the generous benefits. Summing the population in the 15 countries, the cohorts around age 45 made up more than 6.3 million individuals in 2010. In contrast, the cohorts below age 10 consisted of only slightly more than 4 million individuals and the cohorts aged 60–70 of 4–5 million. Therefore, the net contributions are shared among the members of a large group, while the net benefits are enjoyed by a comparably small share of the total population in childhood and old age. There are large gender differences across countries, measured by the difference between the net benefits for women and for men. In Austria, Germany, Sweden and the UK, women receive considerably larger net benefits than men. In contrast, Lithuania, Latvia, Italy, Spain and Slovenia are characterised by considerably lower net benefits of women compared to women. 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	
<b>EU-15</b>	<b>16</b>	<b>17</b>	<b>-15</b>	<b>-15</b>	<b>6</b>	<b>5</b>	<b>7</b>	<b>7</b>	<b>0</b>
Private market	6	5	0	-7	1	-1	6	-3	
Non-market	7	8	-11	0	-2	1	-5	10	
Public	4	3	-3	-8	6	5	6	0	
Age border	23	24			62	62			
<b>Austria</b>	<b>16</b>	<b>16</b>	<b>-13</b>	<b>-20</b>	<b>7</b>	<b>8</b>	<b>10</b>	<b>5</b>	<b>5</b>
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			
<b>Belgium</b>	<b>13</b>	<b>13</b>	<b>-13</b>	<b>-15</b>	<b>5</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>3</b>
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			
<b>Bulgaria</b>	<b>19</b>	<b>21</b>	<b>-15</b>	<b>-12</b>	<b>4</b>	<b>3</b>	<b>8</b>	<b>12</b>	<b>-4</b>
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			
<b>Germany</b>	<b>15</b>	<b>16</b>	<b>-11</b>	<b>-18</b>	<b>7</b>	<b>3</b>	<b>10</b>	<b>1</b>	<b>9</b>
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			
<b>Estonia</b>	<b>17</b>	<b>17</b>	<b>-14</b>	<b>-15</b>	<b>5</b>	<b>4</b>	<b>7</b>	<b>7</b>	<b>1</b>
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			
<b>Spain</b>	<b>18</b>	<b>19</b>	<b>-17</b>	<b>-10</b>	<b>4</b>	<b>7</b>	<b>5</b>	<b>16</b>	<b>-12</b>
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			
<b>Finland</b>	<b>14</b>	<b>14</b>	<b>-15</b>	<b>-16</b>	<b>9</b>	<b>7</b>	<b>8</b>	<b>5</b>	<b>3</b>
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			
<b>France</b>	<b>13</b>	<b>13</b>	<b>-14</b>	<b>-15</b>	<b>7</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>1</b>
Private market	4	4	-1	-7	1	-1	5	-4	
Non-market	5	6	-10	0	-1	1	-6	7	
Public	3	3	-3	-9	7	6	7	1	
Age border	23	23			61	61			

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

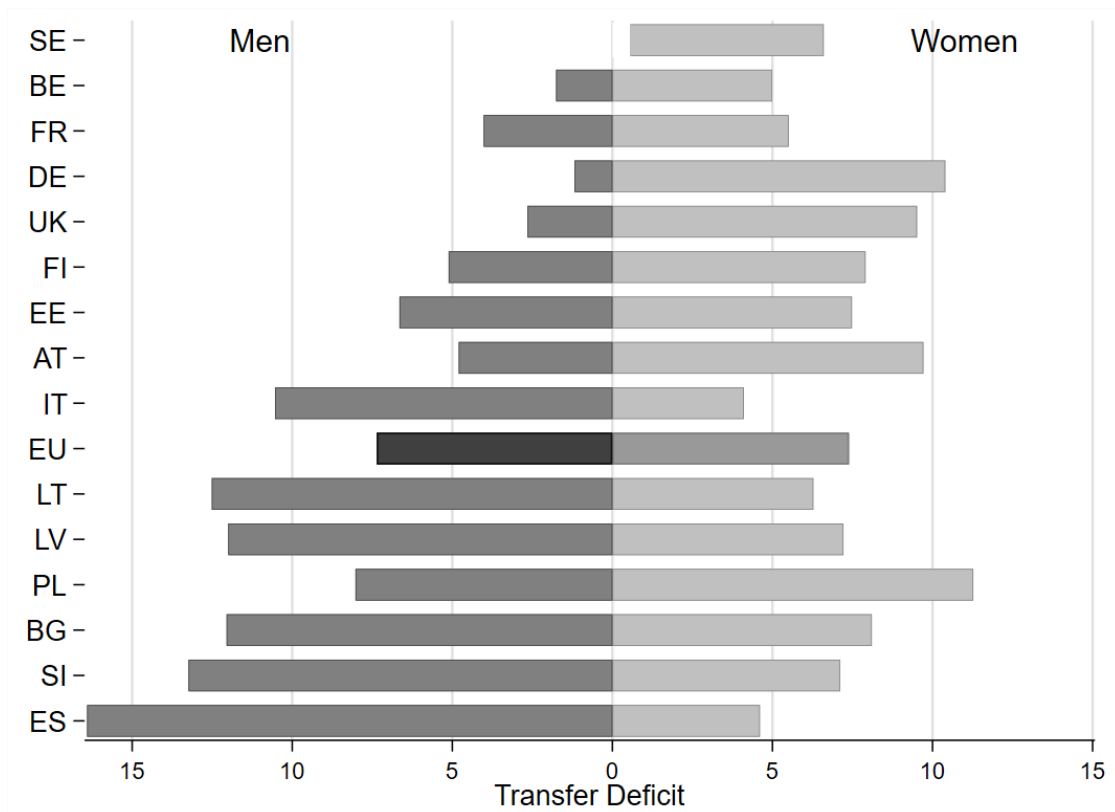
	Young		Work		Old Age		All stages		Diff.
	W	M	W	M	W	M	W	M	W-M
<b>Italy</b>	<b>17</b>	<b>18</b>	<b>-17</b>	<b>-15</b>	<b>4</b>	<b>8</b>	<b>4</b>	<b>11</b>	<b>-6</b>
Private market	6	5	1	-8	1	-2	8	-4	
Non-market	8	10	-15	3	-2	3	-9	15	
Public	3	3	-4	-10	5	6	5	-1	
Age border	25	23			66	60			
<b>Lithuania</b>	<b>16</b>	<b>18</b>	<b>-15</b>	<b>-8</b>	<b>5</b>	<b>3</b>	<b>6</b>	<b>13</b>	<b>-6</b>
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	2	6	2	
Age border	23	25			63	59			
<b>Latvia</b>	<b>16</b>	<b>17</b>	<b>-12</b>	<b>-8</b>	<b>3</b>	<b>3</b>	<b>7</b>	<b>12</b>	<b>-5</b>
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	6	3	
Age border	23	24			62	60			
<b>Poland</b>	<b>20</b>	<b>21</b>	<b>-16</b>	<b>-18</b>	<b>8</b>	<b>5</b>	<b>11</b>	<b>8</b>	<b>3</b>
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			59	60			
<b>Sweden</b>	<b>13</b>	<b>14</b>	<b>-15</b>	<b>-20</b>	<b>8</b>	<b>6</b>	<b>7</b>	<b>-1</b>	<b>7</b>
Private market	4	4	-2	-6	1	-1	4	-2	
Non-market	5	6	-8	-2	0	1	-3	5	
Public	4	4	-5	-12	7	5	6	-3	
Age border	24	23			64	66			
<b>Slovenia</b>	<b>19</b>	<b>20</b>	<b>-18</b>	<b>-14</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>13</b>	<b>-6</b>
Private market	7	6	-3	-6	1	-1	5	0	
Non-market	8	9	-10	0	-3	1	-5	11	
Public	5	4	-5	-8	8	6	7	2	
Age border	24	25			61	59			
<b>UK</b>	<b>16</b>	<b>17</b>	<b>-14</b>	<b>-19</b>	<b>8</b>	<b>5</b>	<b>10</b>	<b>3</b>	<b>7</b>
Private market	5	5	1	-10	2	-1	7	-6	
Non-market	8	9	-12	-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 mortality data (Eurostat 2017).

The gender-specific difference between benefits and contributions are plotted in Figure 2. The transfer deficits of men are plotted to the left of the zero line, those of women to the right. The total (men and women) difference between benefits and contributions is represented by the length of the bars. Countries are ordered according to the total size of the difference. The plot shows that the transfer deficit for men determines the ranking of the countries. The countries at the bottom are those with the largest total deficits and the largest transfer deficits for men. However, the explanations differ: In Spain and Slovenia women do considerably more total work than men, resulting in a high transfer deficit of men. In Bulgaria large transfers to children are observed, coupled with moderate contributions of

men during working age. Lithuania and Latvia are characterised by low net contributions to the public transfer system, which mainly reduces the net contributions of men. The countries with the lowest transfer deficit are those with men and women doing similar amounts of total work. Because of the lower valuation of unpaid work and the high share of paid production distributed across generations and genders, we observe a small transfer deficit for men, both relative to the deficit of women and in absolute terms. In Sweden the net contributions of men are positive, financing part of the deficit of women.

**Figure 2:** Transfer deficit by country and gender



### 4.3 A Decomposition of Public Transfers in Old Age

The public old-age benefits can be split in a level component and a duration component. We hypothesise that gender inequalities in old-age benefits are created by the organisation of public transfers, in particular the pension system. 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 old age we rely on the sign of public net transfers only. 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. As observed in the previous section, the results show that the total old-age benefits are either about equal for men and women, or considerably lower for men. One of the reasons is that 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 in retirement 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. By contrast, the yearly benefits are considerably lower for women in many of the analysed countries. In Austria the average 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. The yearly old-age benefits of women are considerably lower than for men in some countries. 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 2:** Decomposition of net public benefits in old age in a level component and a duration component

	Age border	Total benefits	No. years	Yearly benefits	Age border	Total benefits	No. years	Yearly benefits
<b>EU 16</b>								
Women	59	6	22.9	28	<b>France</b>			
Men	61	5	15.8	31	59	7.2	25.6	28
<b>Austria</b>								
Women	58	7.9	25	32	<b>Italy</b>			
Men	60	8.2	18.3	44	60	6.0	18.8	32
<b>Belgium</b>								
Women	59	5.0	23.7	21	<b>Lithuania</b>			
Men	62	4.2	16.4	26	59	5.3	20.4	26
<b>Bulgaria</b>								
Women	59	3.6	19.1	19	<b>Latvia</b>			
Men	60	3.1	12.7	24	59	2.3	11.8	20
<b>Germany</b>								
Women	60	5.3	22.5	24	<b>Poland</b>			
Men	63	4.6	15.5	30	55	8.4	25.3	33
<b>Estonia</b>								
Women	60	6.4	20.8	31	<b>Sweden</b>			
Men	61	3.4	12.2	28	59	4.7	14.7	32
<b>Spain</b>								
Women	59	5.5	25.8	21	<b>Slovenia</b>			
Men	60	5.9	19.4	31	57	8.1	25.4	32
<b>Finland</b>								
Women	61	9.2	22.3	41	<b>UK</b>			
Men	62	6.6	15.9	42	59	6.1	17.8	34
					60	7.2	22.5	32
					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.

**No. years:** number of years a person can expect to be 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 (Istencič 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 intergenerational transfers, including public

transfers, private market transfers and services produced by unpaid work. 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.

While lifetime transfers across the EU-15 are gender-balanced on average, we find considerable differences between genders in single countries. In Spain, Italy, Lithuania, Latvia and Slovenia, women contribute considerably more to intergenerational transfers than men. The explanation in the cases of Spain, Italy and Slovenia is the considerably larger amount of time devoted to work (including paid and unpaid work) of women in these countries. In Lithuania and Latvia the difference is explained by low net public contributions of men. In Austria, Germany, Sweden and the UK, we find considerably higher net contributions of men, compared to women. These countries are characterised by large net public contributions of men in working age and moderate non-market contributions of 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. Gender differences in yearly net public benefits are particularly high in Austria and Spain. In these two countries the differences in yearly net benefits between men and women amount to more than 10 per cent of the income of a full-time worker (YL), corresponding to about one-third of the benefits of men.

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 all countries except Austria. 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 also 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.

## References

- Bettio, F., P. Tinios, and G. Betti (2013). *The Gender Gap in Pensions in the EU*. <https://ec.europa.eu/social/BlobServlet?docId=13158&langId=en>
- Blau, Francine D., and Lawrence M. Kahn. The gender wage gap: Extent, trends, and explanations. *Journal of Economic Literature* 55.3 (2017): 789-865.
- Bonke, J. (2015). Pooling of income and sharing of consumption within households. *Review of Economics of the Household*, 13 (1), 73-93.
- Donehower, G. (2013). *Incorporating Gender and Time Use into NTA: National Time Transfer Accounts Methodology*. <http://www.ntaccounts.org/doc/repository/Incorporating%20Gender%20and%20Time%20Use%20into%20NTA,%20Version%204.docx>.
- European Commission (2018). *The 2018 Ageing Report: Economic and budgetary projections for the 28 EU Member States (2016-2070)*. European Economy Institutional Paper (079).
- Eurostat (2010). EU Labour Force Survey Database. Yearly microdata for 2010.
- Eurostat (2015). People at risk of poverty or social exclusion. Table edat\_ilc\_peps01 (accessed October 2018).
- Eurostat (2017). Life table. Table demo\_mlifetable (accessed May 2017).
- Eurostat (2018). Time spent in unpaid forms of work by sex and by form of work. Table tus\_00npaywork (accessed March 2019).
- Eurostat (2019). Life expectancy by age and sex. Table demo\_mlexpec (accessed March 2019)
- Gál, R. I., Szabó, E., & Vargha, L. (2015). The age-profile of invisible transfers: The true size of asymmetry in inter-age reallocations. *The Journal of the Economics of Ageing*, 5, 98-104.
- Groiß, J., A. Schneebaum, and B. Schuster (2017). Vermögensunterschiede nach Geschlecht in Österreich und Deutschland: Eine Analyse auf der Personenebene. *Working Paper-Reihe der AK Wien*.
- Hammer, B. (2014). *The Economic Life Course: An Examination Using National Transfer Accounts* [PhD. Thesis], Vienna University of Technology. <http://media.obvsg.at/p-AC11566320-2001>
- Hammer, B., Prskawetz, A, and Freund I. (2015). Production activities and economic dependency by age and gender in europe: A cross-country comparison. *The Journal of the Economics of Ageing* 5, 86-97.
- Hammer, B., Prskawetz, A., Gál, R. I., Istenič, T. and Vargha, L. (2018). Human Capital Investment and the Sustainability of Public Transfer Systems Across Europe. *Journal of Population Ageing*. <https://link.springer.com/article/10.1007/s12062-018-9224-8>

- Hammer, B., Istenič, T., & Vargha, L. (2018). The Broken Generational Contract in Europe: Generous transfers to the elderly population, low investments in children. *Intergenerational Justice Review*, 12(1), 21-31.
- Istenič, T., B. Hammer, A. Šeme, A. Lotrič Dolinar, and J. Sambt (2016). European National Transfer Accounts. <http://www.agenta-project.eu/Jacomo/upload/publications/d-1.4-submitted.pdf>
- Kluge, F. A. (2014). The economic lifecycle by gender—results combining monetary and time use estimates. *Comparative Population Studies* 39(4).
- Lee, R. and A. Mason (Eds.) (2011). *Population Aging and the Generational Economy: A Global Perspective*. Edward Elgar Pub.
- OECD (2011). Expenditure by disease, age and gender under the System of Health Accounts (SHA) Framework. <https://stats.oecd.org/Index.aspx?DataSetCode=EBDAG> (accessed May 2018).
- OECD (2019). *Ageing and Employment Policies - Statistics on average effective age of retirement*. <http://www.oecd.org/els/emp/average-effective-age-of-retirement.htm> (accessed March 2019).
- Poissonnier, A., and Roy, D. (2017). Household Satellite Account for France: Methodological Issues on the Assessment of Domestic Production. *Review of Income and Wealth*, 63(2), 353-377.
- Rentería, E., R. Scandurra, G. Souto, and C. Patxot (2016). Intergenerational money and time transfers by gender in Spain: Who are the actual dependents? *Demographic Research* 34, 689.
- Sambt, J., Donehower, G., and Verbič, M. (2016). Incorporating household production into the National Transfer Accounts for Slovenia. *Post-Communist Economies* 28(2), 249-267.
- Statistik Austria (2019). Integrierte Lohn- und Einkommensteuerstatistik 2015.
- UN (2013). *National Transfer Accounts Manual: Measuring and Analysing the Generational Economy*. United Nations, Department of Economic and Social Affairs, Population Division.
- Vargha, L., R. I. Gál, and M. O. Crosby-Nagy (2017). Household production and consumption over the life cycle: National time transfer accounts in 14 European countries. *Demographic Research* 36, 905–944.
- Vargha, L., and Donehower, G. (2019): The Quantity-Quality Tradeoff: A Cross-Country Comparison of Market and Nonmarket Investments per Child in Relation to Fertility. *Population and Development Review*. <https://doi.org/10.1111/padr.12245>
- Varjonen, J., Hamunen, E., and Soenne, K. (2014). Satellite Accounts on Household Production: Eurostat Methodology and Experiences to Apply It. *Statistics Finland Working Papers 1/2014*

Zannella, M. (2015). Reallocation of resources between generations and genders in the market and non-market economy. The case of Italy. *Journal of the Economics of Ageing* 5, 33–44.

Zannella, Marina, Bernhard Hammer, Alexia Prskawetz, and Jože Sambt (2018). A Quantitative Assessment of the Rush Hour of Life in Austria, Italy and Slovenia. *European Journal of Population*. <https://doi.org/10.1007/s10680-018-9502-4>



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