HUNGARIAN DEMOGRAPHIC RESEARCH INSTITUTE

# WORKING PAPERS

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## INCORPORATING FAMILY CASH AND TIME INTO INTER-GENERATIONAL TRANSFERS ANALYSIS

by
Róbert Iván Gál, Pieter Vanhuysse, Lili Vargha

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## ABSTRACT

Households and welfare states both serve as vehicles of lifecycle financing through intergenerational transfers. Working-age people are net contributors, children and the elderly are net beneficiaries. However, there is a marked asymmetry in the *socialization* of intergenerational transfers. Working-age people pay taxes and social security contributions to care for the elderly as a generation, but they individually spend cash and contribute time to raise their own children. This results in asymmetric *visibility* of intergenerational transfers. Resources flowing to the elderly are near-fully observed in National Accounts *(NA)*, but inter- and intra-household transfers are not registered there. Using data for ten European countries representing 70% of the population of the EU, we employ National Transfer Accounts *(NTA)* to include private transfers as well. In addition, as an extension of NTA, we use National Time Transfer Accounts *(NTTA)* to quantify the value of time transferred within and between households in the form of unpaid labor. Only a fifth of all resource transfers to children is registered in NA; another third is made visible by NTA, but nearly half is made visible only by NTTA. Contrary to much perceived wisdom, once intra-familial transfers of cash and time are incorporated, European societies transfer more resources to children than to the elderly.


**Keywords:** household economy, young and old, care work, child rearing, families, National Transfer Accounts

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## INTRODUCTION: WHAT GENERATIONS GIVE EACH OTHER[1]

Compared to other species, humans throughout evolution have been characterized by uncommonly long periods of dependence on resource reallocations in childhood as well as a relatively long life expectancy after fertility (Kaplan and Robson, 2002; Lee, 2012). In both agricultural and modern societies, but not in hunter-gatherer societies, the elderly also receive more resources than they produce (Lee, 2003; Lee and Chu, 2012). In modern Western societies during the past few decades specifically, significant increases in both life expectancy at birth and remaining life expectancy at older ages have further added to the unusually long periods of resource dependency in the lifespan of humans (Sanderson and Scherbov, 2010; Vanhuysse and Goerres, 2012). It is therefore not surprising that intergenerational resource reallocations have been a central object of concern for social science disciplines as varied as sociology, political science, economics, gerontology and social policy. By intergenerational reallocations we understand the resources redistributed among different current age groups synchronically at a given moment in time (not diachronically as cohorts age). These resources include, for instance, pay-as-you-go pensions, mortgages, student loans, public health care, public or familial child and elderly care, or consumption goods bought by parents for their children. The system of inter-age reallocations is a complex, multi-channel arrangement involving government and other public agencies, corporate actors as well as families.

The recent aging of populations in advanced societies has attracted renewed academic attention. The debate departs from three observations: (1) the currently elderly receive more public transfers than the elderly of the past (Kotlikoff and Burns, 2004); (2) the elderly receive more than children (Lynch, 2006; Vanhuysse, 2013); and (3) the elderly/children public transfer ratio has been increasing (Preston, 1984).[2] The tendency is alternatively referred to as 'grey power', 'gerontocracy' (Sinn and Uebelmesser, 2002), or 'pro-elderly bias' (Gamliel-Yehoshua and Vanhuysse, 2010). Some even speak of a 'generational storm' or a 'clash of generations' (Kotlikoff and Burns, 2004; 2012).[3] We will use the term 'pro-elderly bias' as shorthand for this literature.

In this article we argue that this description of reality is misguided since it is limited to the statistically visible world of public transfers, but largely ignores intra-familial transfers and the household economy. We show that once we use more complete data on the value of all relevant forms of resources that are transferred across generations, a radically different picture emerges. The reason is that there is a significant asymmetry in the forms of financing childhood and old age. Whereas the elderly on the whole tend to rely on society, children are predominantly raised by their own family (mainly parents). Resource transfers flowing upward from the active to the elderly are *socialized* to a much larger extent than those flowing downward to children. Socialization leaves traces that public statistics can capture. Un-socialized transactions do not, leaving them much less visible.

We aim to enrich the analysis of the age composition of intergenerational reallocations by adding new evidence. In a first step, we apply a recent approach - National Transfer Accounts (henceforth NTA).[4] NTA allows us to look not just at the

1 This paper was written as part of the AGENTA project which has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 613247. Gal is grateful for the hospitality of the Institute of Economic Research of Hitotsubashi University.

2 For a critical review, see Vanhuysse (2013).

3 For critical reviews, see Tepe and Vanhuysse (2009) and Goerres and Vanhuysse (2012).

4 NTA was established by Lee (1994a;b); an NTA manual was published by the Population Division of the UN (United Nations 2013); a comprehensive introduction to the method, including theoretical foundations, comparative results and a wide range of country studies can be found in Lee and Mason (2011).

allocation of primary income and its secondary distribution in the form of taxes and benefits based on standard National Accounts (henceforth NA), as is usual in current debates on pro-elderly bias, but also at the tertiary redistribution of after-tax revenues within households (e.g. parents paying for the consumption of their dependent children) and between households (e.g. retired parents supporting their non-cohabiting adult children).

However, NTA still does not cover the provision and consumption[5] of *unpaid household labor* other than the small fraction that is imputed in the national income by current statistical standards. Since our aim is to account for the fullest possible range of intergenerational transfers, in a second step we provide new calculations for this key variable missing from studies of intergenerational transfers. Based on time use survey data, we produce estimates of the value of production and consumption of unpaid household labor and the resulting transfers of household goods and services by age and add these items to our estimations of intergenerational transfers. In other words, we add age into the Household Satellite Account of NA. Following Donehower (2011), we call this the National *Time* Transfer Account (henceforth NTTA).

We analyze data on these three channels of intergenerational reallocations (public, private and time transfers) for ten European countries spanning five welfare state regime models and representing about 70% of the population of the European Union: France, Austria and Germany (Continental regime), Italy and Spain (Southern regime), Hungary and Slovenia (Post-Communist regime), Finland and Sweden (Nordic regime), and the UK (Anglo-Saxon regime). Our main findings can be summarized in three points. (1) In line with the pro-elderly bias literature discussed above, European welfare states, *as* welfare states, tend to devote significantly more resources per capita to the currently old than to the currently young. (2) However, once we take into account private, mostly intra-familial transfers of market goods and services as well as unpaid household labor (time), the picture radically changes. All European societies, as *societies*, turn out to transfer more resources to *children* than to the elderly. (3) The size of net transfers from the active-aged in both directions is higher than usually estimated. Influential accounts on how men and especially women in the 'rush hour' of life live in a 'time bind' at work and in their 'second shift' at home (e.g. Schor, 1991; Hochschild, 1997) may in fact underestimate the degree to which this age group is currently being burdened.

The article is structured as follows. In *Section 2* we combine the age composition (or age profile as we will call it) of labor and consumption in the national economy and in the household economy. This allows us to define lifecycle stages according to resource dependency. If the value of labor performed by an age group exceeds their consumption they are in active age. If, in contrast, consumption is higher than the value of labor the age group is defined as in childhood or old age. *Section 3* shows how the gap in question is filled by public, private and time transfers. In *Section 4* we compare the age profiles of transfers captured by public statistics (we call them 'visible') with those which are not ('invisible' transfers). We then compare the full transfer package of children to that of the elderly and demonstrate major differences. *Section 5* then discusses the implications of our findings for public statistics and for our understanding of what generations do for each other.

5 Consumption of unpaid household labor is short for consumption of goods and services produced by the labor in question.

## THE LIFECYCLE DEFICIT

Children and elderly people in modern societies consume more resources than they produce. The opposite is true for the active-aged population. The lifecycle deficit (LCD),[6] refers to the difference between consumption and labor income. LCD is positive (a true deficit) in childhood and old age, when consumption is not covered by one's own labor income. It is negative (thus a surplus) in active age, when labor income exceeds consumption.

LCD is a key concept of National Transfer Accounts. NTA is a new chapter in the development of national accounting. It introduces age into age-insensitive National Accounts. In NA, revenues flow among institutions, such as households, government and the corporate sector. NTA is based on the recognition that the main entries of NA's Income Account have characteristic age profiles. Labor income is minimal or zero in childhood and old age; it is concentrated in active age. Consumption, by contrast, is more uniformly distributed over the lifecycle. Public transfers are financed mostly by people in their active age and consumed either uniformly or mostly by people in their early or old ages. Resources of households are also reallocated from the active aged to children and the elderly. In short, NTA redefines income streams flowing among institutions as flows among generations. The new accounting standard describes age groups by (1) how much labor income they make; (2) how much they consume; (3) how much they give to other age groups (either through public channels such as taxes, or directly, mostly among relatives); (4) how much they receive from other age groups (either as public transfers, services and public goods, or as private transfers, mostly within the family); and (5) how much they save or dissave. This requires the extension of the usual information base of NA with income and consumption surveys as well as administrative or survey information on tax and transfer incidence.

The typical NTA exercise[7] starts with converting NA entries, such as compensation of employees, operating surplus and mixed income, to the NTA aggregates of labor income (including taxes levied on labor), consumption (net of consumption related taxes) and the resulting lifecycle deficit. The age profiles of these items are derived from administrative data or surveys. The profiles are adjusted to the aggregates securing consistency between NA and NTA. A similar process produces the age profiles of items, such as asset-based revenues, taxes and transfers as well as private transfers given or received, filling the gap between consumption and labor income. Since the tax-transfer systems and data sources vary across countries the technical details of producing the age profiles also differ.[8] The age profile of private transfers is derived from a household sharing model.

Panel *A* of *Figure 1* shows the per capita age profile of LCD in our sample of ten European countries, normalized on the per capita market labor income of persons aged 30-49 of the respective country.[9] This allows us to define lifecycle stages according to resource dependency (a positive LCD) and provision (a negative LCD), as opposed to purely chronologically as is common (e.g. ages 0-19, 20-64, and 65-plus). Accordingly, on average, NTA childhood in Europe lasts from birth until age 25, and old age already sets in on average at age 59. It is clear that the LCD of the elderly is on the whole higher than that of children. The highest LCD during childhood is around ages 14-16, when teenagers receive the equivalent of 59% of the per capita labor income of persons aged 30-49 in their country. The same 59% share is received by the elderly at age 66. Thereafter, the resource transfers received by the elderly keep rising slowly. By the time the average

6 The term was coined by Mason et al. (2006).

7 See the country studies in Lee and Mason (2011).

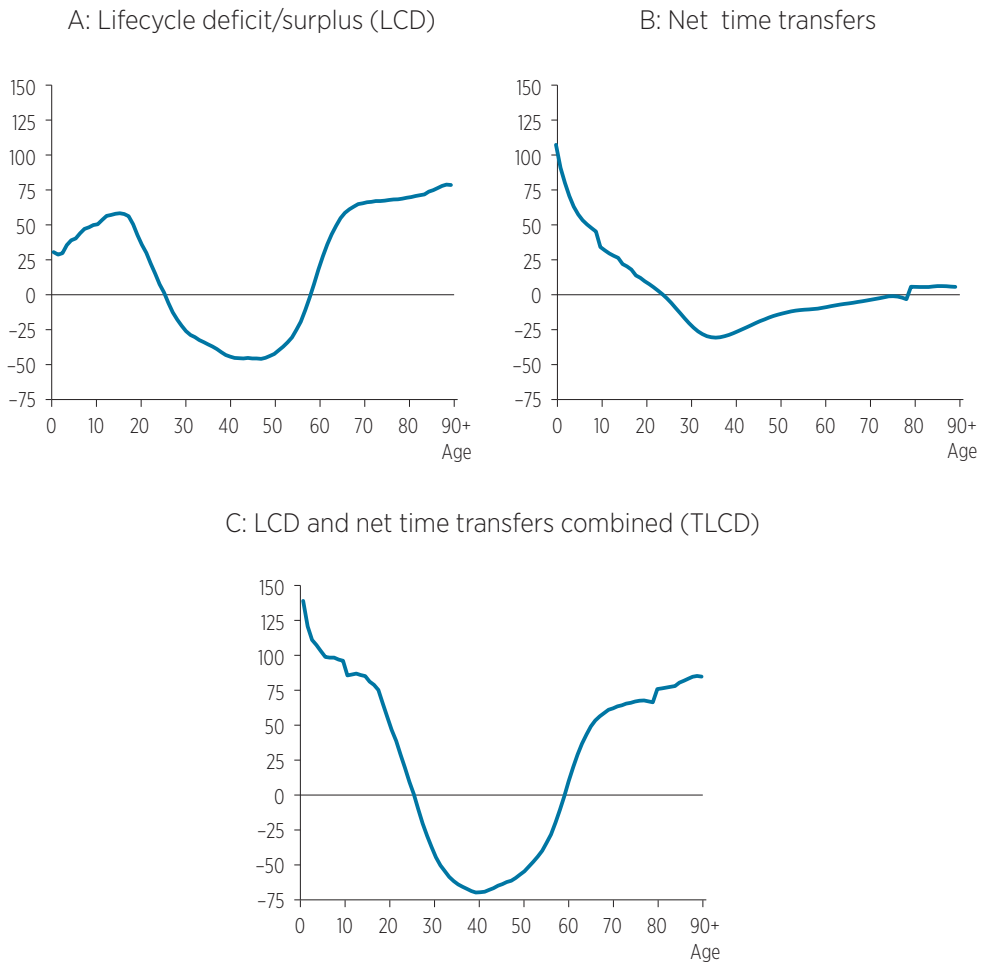
8 Istenič et al. (2016) provide a standardized methodology designed for datasets of the European research infrastructure, which, once operational, will enlarge the scope of comparative analysis.

9 Data can be downloaded from the www.ntaccounts.org homepage. We are grateful to the following teams for allowing their NTA data to be used: Reijo Vanne and Risto Vaittinen (Finland), Bernhard Hammer (Austria), Marina Zannelli (Italy), Katharina Lisenkova (UK), Fanny Kluge (Germany), Joze Sambt (Slovenia), Thomas Lindh et al. (Sweden) and Ció Patxot et al. (Spain). Hungarian data were produced by Róbert I. Gál, Endre Szabó and Lili Vargha.

European reaches age 80, his/her LCD already reaches 70% of per capita labor income in his/her country. By age 90, that figure rises to 79%.

A key variable missing in both NA and NTA approaches to intergenerational transfers, and thus in panel A, is the time devoted to family care and *unpaid household labor* in general. The equivalent of LCD in the realm of unpaid household labor is called net *time transfers*. Its meaning is the same: consumption less production. The goods and services produced and consumed here, however, are not part of the national economy, but of the household economy.[10]

In panel *B* of *Figure 1*, we present the per capita age profile of net time transfers. The figure contains the market value of all work performed in the household except




*Source:* LCD: authors' calculation based on NTA data (www.ntaccounts.org); net time transfers: authors' calculation based on Vargha et al. (2016).

*Note:* Values are population weighted averages of 10 European countries normalized on the per capita market labor income of persons aged 30-49 of the respective country. LCD (lifecycle deficit/surplus) is the difference of consumption and labor income. Net time transfer is the difference of the value of unpaid labor consumed and produced. TLCD (total lifecycle deficit/surplus) is the combination of LCD and net time transfers.

Figure 1

*Per capita lifecycle deficit and net time transfers by age in Europe around 2005*

10 In fact, on top of market production NA also include estimates of parts of non-market production such as volunteer work resulting in goods, household production of certain goods for own use and household production of housing services for owner occupiers (see European Communities, 2003). This creates an overlap, marginal in European societies, which is not dealt with here.

for those that are not transferred (i.e., that are consumed by the worker).[11] The age profile of net time transfers are created in three steps (for more detail see *Appendix 1*). First, we identify the average time spent on various household production activities on an average day, by age and per country. Activities are deemed labor if they can be done by someone else (a third person) on behalf of the respondent, such as cooking, cleaning, making repairs, shopping or caring. Second, we assign home production to its consumers allocating it equally among household members in the case of many activities, but exclusively to children in the case of child care activities. Third, wages are assigned to impute the value of time spent on unpaid household activities by using the regular market wage of those, whose job is done (the specialist replacement wage approach).

It is clear immediately that the shape of the net time transfer profile is radically different in the household economy (panel *B*) compared to the national economy (panel *A*). Net time transfers are highest among newborns, who, quite naturally, need the most care. During their first year of life, babies in Europe receive on average above one hundred percent of the yearly per capita prime-age labor income in their country. These time transfers subsequently decrease sharply but remain substantial throughout childhood and the teenage years. As panel *B* shows, time transfers received amount to nearly 60% of yearly per capita labor income at age 5, to more than one-third of labor income at age 10, and still more than one-fifth at age 15. The value of time transfers only turns negative as late as age 25. The largest net contributors of time transfers are in their thirties to mid-forties. This is the notorious 'rush hour of life,' when adults reach the peak of their workload in the labor market and also tend to be burdened with extensive family care duties.

Note that net time transfers in panel *B* remain negative much longer than is the case in panel *A*. They again become positive only among the oldest-old, after age 80. In other words, active adulthood lasts significantly longer in terms of unpaid household labor (from age 25 to age 79) than in terms of the national economy (from age 26 to age 58; panel *A*). This reflects the substantial housework, grandparenting and other social and civil society activities undertaken by many young-old Europeans in their sixties and seventies. Moreover, even after age 80, elderly Europeans never receive more than 6% of per capita prime-age labor income in time transfers. By contrast, children keep receiving the same 6% share, or more, right until age 21.

Finally, panel *C* of *Figure 1* combines net public transfers with LCD and net time transfers. This gives a more complete description of the total economy that includes both the national and the household economies. We call this combination the *total lifecycle deficit* (henceforth TLCD). The picture of total intergenerational transfers is both informative and, in many respects, surprising. First, Europe is a relatively idle continent, with unexpectedly long periods of childhood and of old age and a relatively short productive life stage. That is, defined not chronologically but by actual *total* resource dependency, childhood lasts on average as long as age 25 while old age already starts at age 60.

Second, Europe is essentially a *child-oriented* continent. Taking into account all transfers including time, children between birth and age 9 receive between 139 and 96% of per capita labor income in their country. Children thus receive more than even the very oldest old receive – those aged 90 and above. Right until he/she reaches voting age (typically 18) and thus legally becomes an adult, an average child in Europe

11 More precisely, Panel B of Figure 1 includes inter-age group time transfers. So on top of the value of household labor consumed by the person working, transfers between people of the same age are also missing. Since time transfers flow almost exclusively among close relatives who are very rarely of the same age, this volume is negligible.

continues to receive more total resources than an average elderly person in his/her country until the age of 72. Young Europeans still receive on average more than 75% of per capita prime-age labor income in total resources right until they reach age 17. Elderly Europeans, however, start receiving the same 75% share only after they reach age 80.

## COMPLETING THE PICTURE STEPWISE: FROM PUBLIC TO PRIVATE AND TIME TRANSFERS

The TLCD curve of panel *C* reappears in the diptych-type *Figures 2, 3* and *4*. These show on the left-hand side the age profile of a transfer type and on the right-hand side how the transfer in question contributes to filling the gaps in the TLCD curve. They illustrate how the gap between consumption and production is financed through three different channels: public transfers mediated by government, social security or other public actors (*Figure 2*); private transfers flowing within or between households, overwhelmingly among relatives (*Figure 3*); and time transfers, which are intra-familial transfers of goods and services produced by unpaid labor (*Figure 4*).[12]

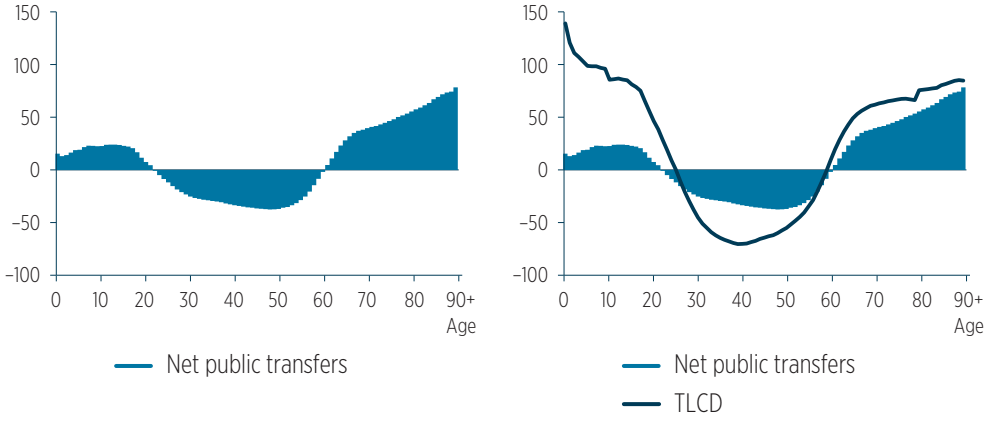
### 1. PUBLIC TRANSFERS: PRO-ELDERLY WELFARE STATES

The left-hand side of *Figure 2* shows public transfers such as taxes and subsidies on production, taxes on income and wealth, social contributions and benefits (both cash and in kind), as well as other current public transfers. Inflows and outflows are netted out. The enveloping curve of the shaded area is in line with the general message of the pro-elderly bias literature (Tepe and Vanhuysse, 2010; Vanhuysse, 2013). European welfare *states* are pro-elderly oriented: the elderly get many more *public* transfers per capita than children. The highest net public transfer in childhood is around age 12-13, but this amounts to less than one-quarter of prime-age earnings. By contrast, all Europeans aged 65 and older receive more than this. In fact, by the time they reach age 77, they receive more than half of prime-age earnings in their country in public transfers. Meanwhile Europeans aged 90 and older even receive more than three-quarters of labor income in public transfers.

In terms of welfare state dependency childhood lasts till the age of 21 and old age starts at 60.

In short, the balance of public transfers is tilted to the old. However, the right hand panel of Figure 2 also reveals large gaps in the total lifecycle deficit. Significant parts of TLCD remain unexplained, particularly among children. Consumption exceeds production by an equivalent of nearly 140% of annual prime-age labor income for the newborn, out of which public transfers cover only 15 percentage points leaving a gap of 125 percentage points. The highest such unexplained gap among the elderly, at the age of 69, is only 23%. Other forms of inter-age reallocations must fill the gap.

12 A fourth channel we keep out of our analysis, is asset-based reallocations (ABR), such as saving and income from property and capital. Most models approach ABR longitudinally. A typical individual becomes indebted while young; as young middle-aged he/ pays it back; as older middle-aged he/she saves and inherits; finally in old age he/she dissaves again. In a way resources travel in time in a longitudinal analysis. For NTA, which is a period accounting technique, saving and asset-based revenues are reallocations between age groups, typically with older middle-aged and old people on the giving side and young people on the receiving side. ABR are protected by property rights and create legally enforceable wealth; other inter-age reallocations, such as transfers, do not. Public transfers are regulated by contracts, but these do not create property rights and are subject to one-sided changes. Private transfers, including time transfers, are typically based on social norms and, apart from some extreme cases of child neglect, are not enforceable by law. Note that ignoring asset-based reallocations affects our results in a conservative way. As shown in Appendix 2, the age profile of ABR is highly skewed to the old. Should we include them, our argument that reallocations favoring the old are salient whereas transfers for children remain mostly unaccounted for would become even stronger. Our limited focus is justified by the very pro-elderly bias literature, which also overlooks the age composition of capital ownership. The examples of this literature are usually limited to demonstrate asymmetries in access to public resources or comparative consumption levels. The reason most likely lies in the property rights settings. Buying property or paying for its use is not considered the same 'burden' as transferring resources since the former is protected by stronger contracts.




*Source:* Authors' calculation based on NTA data (www.ntaccounts.org).
*Note:* Values are population weighted averages of 10 European countries normalized on the per capita market labor income of persons aged 30-49 of the respective country. TLCD (total lifecycle deficit/surplus) is the difference of consumption and value of labor including both the national economy and the household economy.

Figure 2

*Per capita public transfers and their contribution to filling the gaps of total lifecycle deficit by age in Europe around 2005*

## 2. PRIVATE TRANSFERS: FROM (OLDER) WORKING-AGE ADULTS TO CHILDREN (ESPECIALLY TEENAGERS)

In the left-hand panel of Figure 3 we show the age profile of one such alternative channel, private transfers. These are flows of items that are part of the national income, such as services and commodities bought by parents but consumed by their children. They are exchanged almost exclusively among relatives and overwhelmingly within the household. They are considered the balancing item between private consumption and disposable income (labor income less net public transfers) communicated among family members. Estimations are based on a household sharing model and a simple set of assumptions accommodating cross-country comparison on a global scale (United Nations, 2013, Ch.7.4). Calculations are made on large consumption surveys, in the European case household budget surveys.

The age profile of private transfers is rather different from that of public transfers. First, reflecting the typical household structure prevalent across Europe, private transfers are mostly a two-generation affair. Children, this time up to the age of 27, are net receivers. People in active age are net providers. At around the age of 60 net private transfers become marginal, and they remain so through all older age groups. Second, while negligible in old age, private transfers are more important in childhood than public transfers, exceeding them in every age group of children.

The right-hand panel of Figure 3 shows that the unexplained part of TLCD decreased both in childhood and in active age, especially among older middle-aged people, whose children become more resource-dependent as they grow up. Yet, large parts of the area below the curve are still white. This gap is mostly filled with time transfers.

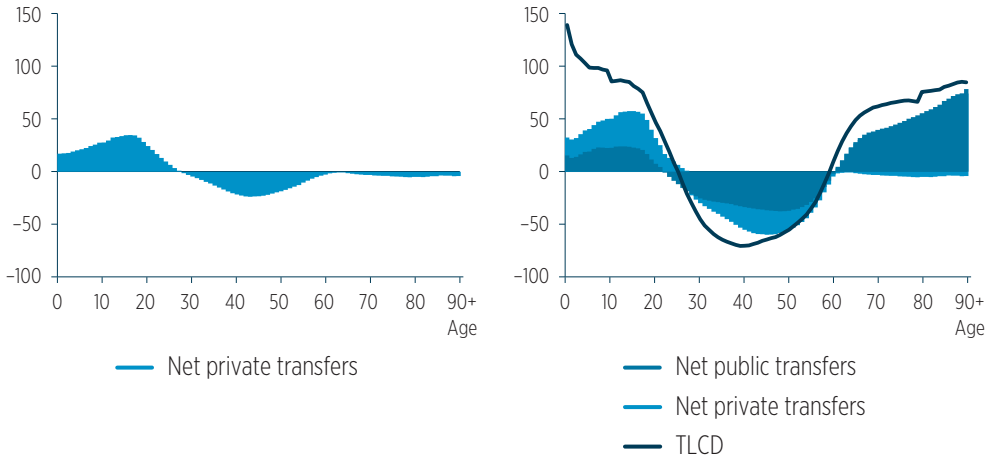



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Figure 3

*Per capita private transfers and their contribution to filling the gaps of total lifecycle deficit by age in Europe around 2005*

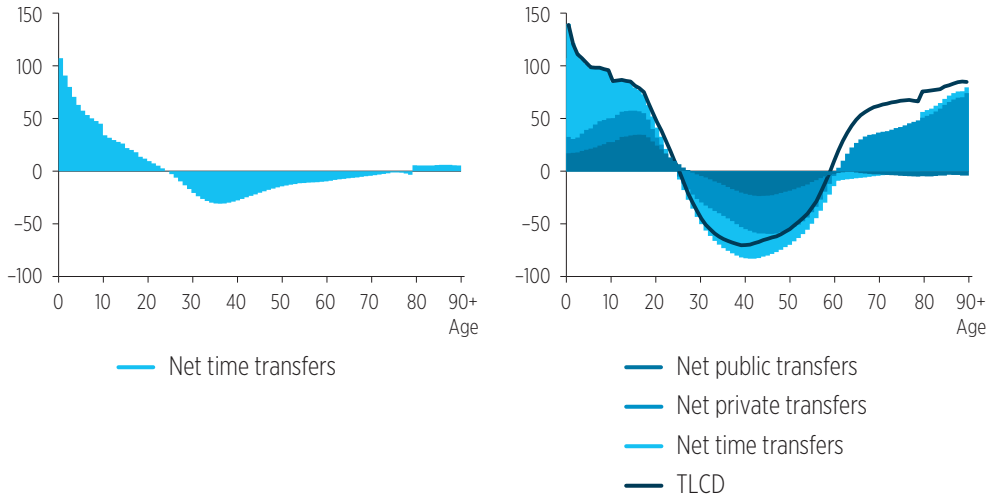
## 3. TIME TRANSFERS: FROM (YOUNGER) WORKING-AGE ADULTS TO (ESPECIALLY YOUNGER) CHILDREN

As *Figures 3* and *4* show (see also discussion above), children cost more time when small and more cash as they grow older. Private transfers of market goods and services start at a lower base, but exceed the value of time transfers by age 12 and subsequently remain above them throughout youth. Second, on the whole, time transfers are *more* important. In aggregate, children receive nearly one-and-a-half times as many time transfers as private cash transfers, despite the fact that the net receiving position in private transfers is slightly longer. Third, the old-age end of *Figure 4* is also different from that of *Figure 3*. Younger pensioners up to age 79 are modest net providers of time. In contrast, the oldest-old become net receivers.[13]

In sum, incorporating time transfers allows us to give a full account of the financing of childhood as well as the entire transfer burden of the active aged. Taking the complete transfer package into account, children cost more than the elderly.[14] The largest package, that of the newborn, equivalent of 140% of prime-age earnings, is 60 percentage points higher than the largest transfers for an age-group in old age (80%). Out of the fifteen age groups receiving the largest net overall resource transfer package, fourteen are childhood stages and only one is from among the elderly. If this is the case why does the pro-elderly bias thesis appear so dominant?

13 Not being the focus of this paper we ignore gender differences here. Vargha, Gál and Crosby-Nagy (2015) provide details.

14 This message holds universally. Children receive more overall transfers than the elderly in each of the ten countries in our sample, irrespective of their dominant welfare regime (not shown, available on demand).




*Source:* Authors' calculation based on NTA data (www.ntaccounts.org).
*Note:* Values are population weighted averages of 10 European countries normalized on the per capita market labor income of persons aged 30-49 of the respective country. TLCD (total lifecycle deficit/surplus) is the difference of consumption and value of labor including both the national economy and the household economy.

Figure 4

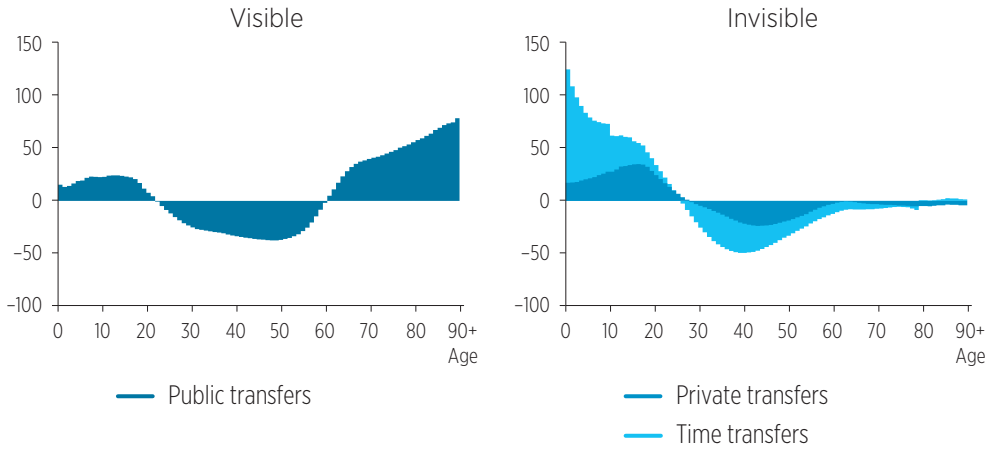
*Per capita time transfers and their contribution to filling the gaps of total lifecycle deficit by age in Europe around 2005*

## ASYMMETRIC SOCIALIZATION, ASYMMETRIC VISIBILITY

There is a significant asymmetry in the forms of financing childhood and old age in modern societies. Whereas the elderly on the whole tend to rely on society, children are predominantly raised by their own family (mainly parents). Transfers flowing upward from the currently active to the elderly are *socialized* to a much larger extent than those flowing downward from the currently active to children. By socialization we mean the arrangement of intergenerational reallocations by large-scale, necessarily anonymized institutions (rather than close kin or local communities), including not just governments (such as public child care facilities, child support programs, education, social security and public health plans), but also non-profit organizations serving households and for-profit corporations (such as private schools, pension plans, insurance agencies and various other financial institutions). In *Figure 5* we split the full transfer package by visibility. Public transfers (left-hand panel) are visible in that they are covered by standard public statistics. In contrast, private transfers and time transfers (right-hand panel) are captured only by the recent methodological novelties, NTA and NTTA. They still fly under the radar of current statistical standards.

Visibility depends on the nature of the bond linking the people involved. Market and government transfers flow between people connected by contractual relations enforceable by law. The value of transfers is largely set by market forces or regulation. The actors therefore know the transfer values and register them in their books either on both ends of the transaction or unilaterally. In the case of what we call invisible transfers, one or both of these conditions are not met. The cooperation of the actors, most frequently family members, is regulated by customs and social norms. Violation of these norms is less observable and, except for extreme cases, not enforceable by law and therefore not registered by the actors. In the case of time transfers, they cannot even be

measured directly because the transfer is not evaluated in the market. Either way, these transfers are difficult to collect information on and are missing from public statistics. In short, visibility corresponds with socialization of transfers since it is socialization that leaves traces and makes valuation relatively simple.




*Source:* Authors' calculation based on Figures 2, 3 and 4.
*Note:* Values are population weighted averages of 10 EU countries normalized on the per capita market labor income of persons aged 30-49 of the respective country. Visible transfers are public transfers; invisible transfers are private and time transfers.

Figure 5
*Asymmetric visibility of inter-age transfers in ten European countries around 2005*

In some sense, there is a universal functional division of labor going on between governments and families. Working-age citizens pay taxes and social security contributions to care indirectly and generally for currently elderly *generations* through state programs (visible in NA). But they predominantly spend private time and private resources to care directly for their *own* children themselves (largely invisible in NA). This asymmetric socialization of intergenerational transfers was first highlighted by Demeny (1986); the resulting asymmetry in visibility by Folbre (2008).[15] Transfers flowing to the elderly are easier to socialize than those to children. The elderly can use public services or can be given cash without the intercession of a guardian; they can also produce household goods that children cannot. Consequently, transfers flowing to the old are more socialized and more visible than those to children. Net visible transfers are skewed to the elderly whereas net invisible transfers flow almost exclusively to children. Table 1 gives further details by showing the institutional composition of transfers flowing to the two groups of net beneficiaries in our sample of 10 EU countries.

Children in Europe, defined not by chronological age, as is usual, but by TLCD,[16] receive on average one-fifth of their complete transfer package through public channels and another one-third comes from the family in the form of commodities and services bought in the market. However they receive *nearly half* of their net transfers as goods and services produced at home mostly by their parents in the form of unpaid household labor. In contrast, the elderly (similarly defined according to the TLCD logic) are net providers of

15 See an early effort to capture invisible transfers in Spéder (1990).

16 As mentioned above, a special advantage of NTA methodology is to give data driven age-limits between the three sections of the lifecycle. These age-limits change country by country but are also affected by the scope of analysis. The upper age limits of childhood or working age are carved out at different ages in the household economy, the national economy and in the combination of the two, the total economy. In this section we apply age limits of the total economy (cut off by the TLCD curves) in the respective countries. In Europe as a whole, the population weighted 10-nation average defines children as those 0-25 years old; working age covers those 26 to 59 years old; and old age starts at 60.

both time transfers and private transfers, as these components of their transfer portfolio are negative (-10%, both). Combined, the net invisible transfers reduce their complete package by one-fifth (-20%); the positive side of the net transfer package consists only of public transfers. In sum, since the visibility of the transfer packages received by children and by the elderly is asymmetric, it is misleading to analyze lifecycle financing through public transfers and thus from public statistics only. The misrepresentation of the way inactive periods are financed is significant, due to the considerable size of the invisible transfers.

Table 1

*Composition of the net transfer package for net recipients, %*

| | Public transfers | Private transfers | Time transfers | Total |
|---|---|---|---|---|
| Children | 20 | 33 | 47 | 100 |
| Elderly | 120 | –10 | –10 | 100 |

*Source:* Authors' calculation.
*Note:* Population weighted averages based on data of 10 EU countries.

*Table 2* contains the per capita values of the full transfer package in terms of prime-age labor income by transfer type flowing to children and the elderly, respectively. It further specifies the findings of the right hand panel of *Figure 4*. The bottom row shows the child/elderly transfer ratio. In line with the pro-elderly welfare state literature, the elderly receive more than twice as much net public transfers than children; an amount equivalent of 37% of the average labor income of a prime-earning-age person (compared with 15% for children). Crucially, *Table 2* also shows that limiting the analysis of intergenerational resource transfers to public transfers seriously misinforms about actual resources received during the dependent sections of life. If private, mostly intra-household, transfers are also taken into account, the picture changes radically. The combined public-private transfer package of children is larger than that of the elderly: 39% of the average labor income of prime-earning age people flows to children, compared to just 34% to the elderly. More importantly still, if in a third step we add transfers of unpaid labor, the original proportions are inverted. The child/elderly transfer ratio jumps from less than one half (0.39) to more than double (2.35). Instead of receiving less than half of what goes to the elderly (public transfers only), children get more than twice as much when all transfers are taken into account. In reality, children take up more resources from the active-aged than the elderly.

Table 2

*Per capita value of the transfer package towards children and the elderly*

| | Public transfers | Public + private transfers | Public + private + time transfers |
|---|---|---|---|
| Children | 15 | 39 | 73 |
| Elderly | 37 | 34 | 31 |
| Ch/E proportion | 0.39 | 1.14 | 2.35 |

*Source:* Authors' calculation.
*Note:* Population weighted averages of 10 EU countries. Transfer values population weighted averages of 10 EU countries normalized on the per capita market labor income of persons aged 30-49 of the respective country.

## CONCLUSIONS AND DISCUSSION

We have argued that, contrary to widely held perceptions, children actually cost society more than the elderly in Europe today. Our findings do not contradict those of the elderly bias thesis. That is, welfare states, as welfare *states*, indeed transfer most resources to the elderly. Crucially, however, such public transfer data alone offer a highly incomplete picture of intergenerational transfers, as this seeming pro-elderly bias is in fact the consequence of the asymmetric socialization of intergenerational transfers and the resulting asymmetric visibility of transfers in National Accounts. As our National Transfer Accounts and National Time Transfer Accounts results show, once one takes into account the value of private cash and time transfers as well, the conclusions are strikingly different. European societies, *as* societies, actually transfer more than twice as many resources to children than to the elderly. The value of the full transfer package for a child is equivalent of 73% of annual per capita prime-age labor income, out of which only 15 percentage points flow through publicly recorded channels. In contrast, the public part of the elderly's package is larger than the whole. Per capita they receive around 37% of prime-age labor income from society, which is actually reduced to 31 percentage points through private transfers provided in cash and time by the elderly for others.

The prevalence of the concept of pro-elderly resource bias is likely to be the consequence of what we have dubbed the asymmetric socialization of intergenerational transfers. Working-age adults no longer tend to live with their parents. Care for elderly generations is largely institutionalized through government programs or markets, while raising children is still mostly a family affair. Socialization leaves traces that public statistics can capture. Un-socialized transactions do not, leaving them invisible for authorities. In the end, asymmetric socialization results in asymmetric visibility of transfers. Public transfers are more salient than private cash or time transfers.

This is not to say that children *consume* more than the elderly. The opposite is true not only in the national economy (Tung, 2011) but also in the total economy (Vargha, Gál and Crosby-Nagy, 2015). However, the question of who consumes more is separate from the question of who costs more to others. The elderly consume more than children because children have no access to asset-based revenues, which are a significant source of income especially among the younger elderly. In addition, children have no labor income and produce less household labor than the elderly, which in turn they consume mostly by themselves. Cleared of the value of own labor and revenues derived from wealth protected by property rights, the resources flowing to children exceed those to the elderly.

The observation that working-age people tend to privately and directly care for their children sheds new light on evolutionary theories in sociology, anthropology and economics, which aim to explain the opposite – high levels of *socialized* child rearing. Hrdy (2001), Bowles and Gintis (2011) and Kaplan and Gurven (2005) argue that the uncommonly long period of dependency of human offspring on adults, even compared to other primates, explains why in hunter-gatherer societies cooperative child-rearing practices evolved that extended beyond the immediate family. Making one step further, Wilson (2014) even attributes to socialized child rearing the phenomenal evolutionary success of humans and just 19 other eusocial species. Hrdy (2001, p.80) also notes that the length and intensity of child resource dependency makes humans unique: 'in nonhuman apes, youngsters, once they are weaned, provision themselves. Not so among human foragers, where the diets of children as old as eighteen are still being subsidized by adults.' As we have shown, resource dependency in childhood lasts still seven years longer in contemporary Europe.

Noting that government first appeared in the intergenerational transfer system at the younger end of the lifecycle by establishing public education, economic models aim to explain the historical introduction and temporal sequencing of intergenerational *social* policies for the young (e.g. Becker and Murphy, 1988). In their account, in the absence of reliable and enforceable long-term contracts, welfare states have historically evolved in order to provide a public (cross-sectional) solution to the problem of transferring private resources from 'producers' to economically less powerful younger 'dependents' over the life cycle. Lee (2012, p.26) similarly argues that the uniquely human form of sociality through cooperative child rearing has paved the way for the emergence of the welfare state as an institutional solution for, and improvement over, private family care for young dependents.

However, these various accounts do not explain why it is families, not states, who still take upon themselves the overwhelming share of resource transfers to younger generations. Interestingly, the traditional private model of child rearing has reasserted itself even in communities originally set up explicitly to deny or modify it. For instance, in a number of egalitarian collective childrearing communities founded in the 1960s and 1970s, commune member mothers ended up expressing even stronger preferences than mothers in ordinary household forms for caring for their *own* biological children (Cohen and Eiduson, 1976). The originally radical Israeli kibbutzim model of collective rearing by multiple non-kin caregivers of even very small children was gradually diluted over time to allow ever greater parental involvement including home sleeping, until the whole system was abandoned in the 1980s (Aviezer et al., 1994; Beit-Hallahmi and Rabin, 1977).

We have highlighted that the puzzle of primary theoretical interest is why child rearing has not been socialized much *more* than we can observe in reality. In fact, even state investment in child-oriented social programs with astonishingly high social rates of return throughout the lifecycle, such as early childhood investment, have remained marginal across advanced societies, with the possible exception of Nordic Europe (Heckman, 2004; Vanhuysse, 2015). The seeming tension with the cooperative child rearing perspective may be reconciled if we assume that simultaneously to the larger society taking on a larger part in child support, at least compared to previous centuries, a parallel process of retreating to the nuclear family has been accompanied by a decrease in the importance of local community and larger kinship – the original cooperative child rearing units.

Another implication of our findings is that the full net transfer package of the active aged may well be larger than previously thought, once private transfers and time transfers are taken into account. Influential accounts have documented the 'overworked' Americans (Schor, 1991) or Israelis, Mexicans, Greeks and Brits (Frase and Gornick, 2013) in a 'time bind' (Hochschild, 1997). But they may in fact underestimate the degree to which middle aged groups, especially women, are squeezed in modern social life. Clearly, there are additional key differences here between parents and non-parents (Folbre, 1994; 2008). Moreover, there is a class element to the resources spent on children, which is likely to be exacerbated by more recent sociological trends such as rising divorce and single motherhood rates among low-SES but not high-SES groups, and increasing educational homogamy in partner choice (Esping-Andersen, 2009; 2015).

For the time being, we do not have retrospective information describing the process leading to the current situation. Do children *still* cost more per capita than the elderly, or do they cost more *by now*? Did the increasing public transfers in the portfolio of the elderly also increase their full transfer package? Or was it rather a compensation for losing private transfers and time transfers due to decreasing co-habitation of adult children and their parents? Although we cannot address these

questions, we do have a few reference points. Gershuny (2000; 2005) demonstrated that the average time spent on unpaid household labor has increased through the second half of the last century in the UK. Since this is due to various causes including shorter working hours, lower retirement age, and higher life expectancies in old age, these figures by themselves are not conclusive about time transfers to children. The value of time measured either by replacement wages or opportunity costs has grown with the economy even if the share of labor in GDP decreased and the inequality of wages increased in the last decades (Piketty, 2014). This probably made time transfers more valuable in monetary terms. Two demographic developments point in the same direction. Lower fertility tends to increase time transfers per child (Vargha and Donehower, 2016), and shrinking household size tends to raise per capita time transfers for all multi-person household members. Future research must find the overall impact of such developments.

Either way, our results are consistent with a development different from the one-sided storyline of creeping gerontocracy, the slowly growing resource grabbing power of the elderly. The growing relative share of the elderly might well have gone in parallel with ever increasing resources for the young. Despite of the validity of the observed shift in public spending the 20$^{th}$ century might have also proved to be the century of the child, as Ellen Key (1909 [1900]) predicted over a century ago.

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## APPENDIX 1: AGE PROFILES OF NET TIME TRANSFERS

The age profile of net time transfers is created in three steps.[17] First, we identify the time spent on household production activities by age. Data source for France, Germany, Italy, Slovenia, Spain, Sweden and the UK is the Harmonised European Time Use Survey Web Application (HETUS)[18] from which we downloaded the average time spent on selected activities on an average day by country. We identify unpaid household labor activities by virtue of the third-person principle: activities are considered labor if they can be done by someone else (a third person) on behalf of the respondent, such as cooking, cleaning, making repairs, shopping or caring. We omit parallel activities.[19] In the case of Austria we use estimations by Hammer (2014) and of Hungary by Gál, Szabó and Vargha (2015) employing national time use surveys.

As a second step, home production is assigned to its consumers. Estimating economic flows of home production between individuals living together relies on a simple model of the household. Since goods and services produced by housework frequently represent household public goods, we allocate housework time equally among household members. In the case of childcare, time is consumed only by children and the allocation is straightforward in all households with only one child present. If there is more than one child living in the household, time is distributed among them with the help of data driven equivalence scales calculated separately for each country.

Finally, wages are assigned to impute the value of time spent on the chosen activities. Pricing unpaid household labor is difficult for it is unpaid: there is no market mechanism to make the evaluation. Applying the observable market prices raises two problems. First, it is not obvious whose wage should be considered: the wage of the person who is doing the household work (the opportunity cost approach) or that of the person whose job is done (specialist replacement wage approach). In the first case we apply the unit wage of the respondent of the survey, an IT expert for instance, even if he/she just washes up the dishes. In the second case we use the regular market wage of someone who washes dishes full-time as his/her main job. Since much of household labor requires basic or no skills, the opportunity cost approach assigns higher value to household labor, in particular tasks done by men, than the replacement wage approach. The current NTTA-standard applies the latter specialist replacement wage approach.[20]

Wages assigned to home production were taken from the four-yearly waves of the Structure of Earnings Survey (SES) by Eurostat.

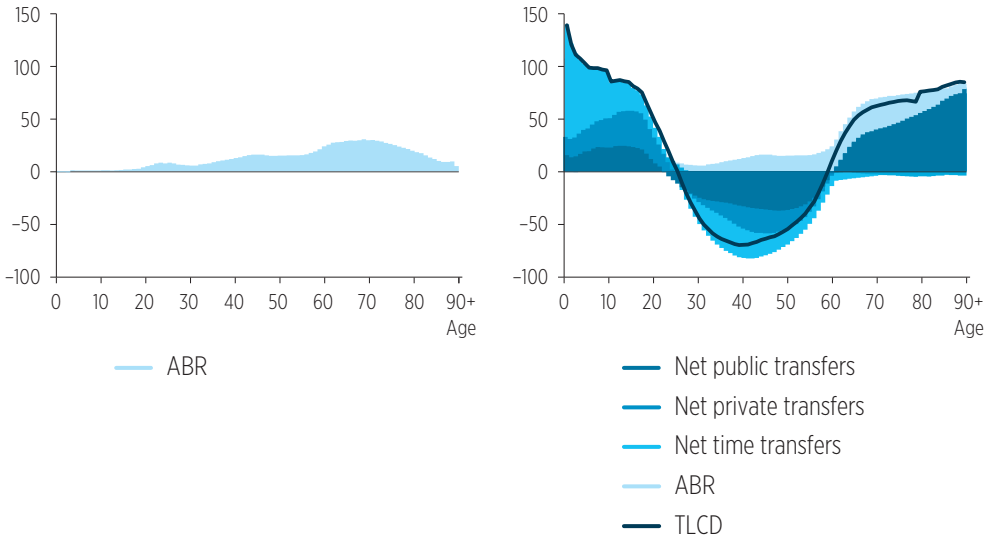
17 We followed recommendations by Donehower (2011) who developed the NTTA methodology. Our empirical results are based on Hammer (2014) for Austria, Gál, Szabó and Vargha (2015) for Hungary and Vargha, Gál and Crosby-Nagy (2015) for all other countries. For methodological details not discussed here the reader is kindly referred to these papers.

18 HETUS is an effort by the EU to harmonize European time use surveys. It is currently maintained by Statistics Sweden. All important information, documentation and metadata can be found on its website: https://www.h2.scb.se/tus/tus/default.htm.

19 Time use questionnaires usually allow parallel (or 'secondary') activities, such as cleaning the dishes while helping a child with homework, to be recorded at the same time. However, as a result of the considerable variance in the time spent on these activities across European countries – and in line with the Donehower-methodology – we left these secondary activities out from our analysis.

20 Valuing household labor based on market wages raises the problem of selection bias. Professionals work more efficiently than laymen so applying their wages may overestimate the value of household labor. However, there are various activities, which are prone to reverse selection bias. Telling bedtime stories to a child or caring for a relative can be more valuable if performed by a loved one even if his/her skills are less developed than those of a professional. Since the final balance of such biases is far from obvious we leave the issue of selection bias aside.

## APPENDIX 2: THE PER CAPITA AGE PROFILE OF ASSET-BASED REALLOCATIONS (ABR) AND THEIR CONTRIBUTION TO FILLING THE GAPS OF THE TOTAL LIFECYCLE DEFICIT BY AGE IN EUROPE AROUND 2005




*Source:* Public and private transfers, ABR: NTA database (www.ntaccounts.org); time transfers: European NTTA database.

*Notes:* Values are population weighted averages of 10 European countries normalized on the per capita market labor income of persons aged 30-49 of the respective country. TLCD (total lifecycle deficit/surplus) is the difference of consumption and value of labor including both the national economy and the household economy.

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