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# Intergenerational transfers and wealth in the Euro-area: The relevance of inheritances and gifts in absolute and relative terms

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Discussion Paper

Economics

2016/4

# Intergenerational transfers and wealth in the Euro-area

## The relevance of inheritances and gifts in absolute and relative terms<sup>°</sup>

Anita Tiefensee\* and Christian Westermeier\*\*  
March 2016

### Abstract

Private wealth is a crucial factor for the economic well-being of households. Key determinants of private wealth include intergenerational wealth transfers (gifts and inheritances), which are gaining importance since 1990, as research suggests. We conduct a detailed investigation of the distribution of wealth transfers in eight Euro-area countries. First, we investigate the patterns of prevalence and level of past wealth transfers in the individual countries: Who received transfers, and what is their present value in absolute terms? We find that in most countries the percentages of households with a transfer as well as the mean present value of those transfers is increasing along the distribution of net wealth. Using a series of country-specific multivariate regressions, we find that households with higher income and education levels have both a higher probability of receiving transfers and higher absolute transfer value. We then analyze the present value of transfers as a percent of current net worth. Here, in relative terms, some of the results are reversed, as the relative importance of intergenerational transfers does not increase with the level of wealth or income. Using a fractional logit regression we conclude that for higher income quintiles the share of current net worth due to past intergenerational transfers tends to be decreasing.

*Keywords:* intergenerational transfers, inheritances and gifts, wealth distribution

*JEL-code:* D64, D31, D14

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## 1. Introduction

Private wealth is a crucial factor of economic well-being for individuals and households. Research suggests that saving rates from income and intergenerational wealth transfers (inheritances and gifts)<sup>1</sup> are two key determinants of wealth held by private households (for an overview see Davies & Shorrocks 2000; for more recent research Semyonov & Lewin-Epstein 2013, Arrondel et al. 2014, Mathä et al. 2014, and Fessler & Schürz 2015, among others). Since the 1980s an ongoing debate over which of the two determinants contributes more to the current net worth of private households (Modigliani 1986, 1988, Kotlikoff & Summer 1981, Kotlikoff 1988) is ongoing. Research stresses that intergenerational transfers are a dominant factor (Piketty 2011, 2014, Piketty & Zucman 2015), thus fueling the discussion about the legitimacy of wealth without effort with some economists arguing that this development may even pose a threat to democracy (Piketty 2014, Bönke et al., forthcoming). Indeed, the majority of individuals born in developed countries will receive some sort of wealth transfer during the course of their life. Everybody has parents or other relatives that inevitably will pass away one day. However, not all individuals receive a significant transfer (Davies & Shorrocks 2000).

We investigate the current role of wealth transfers in the Euro-area (Austria, Belgium, France, West Germany, Cyprus, Greece, Portugal, and Spain). As the availability of data was limited, this is the first time that cross-country comparisons focusing on Europe are possible. We analyze incidence and levels of wealth transfers: the percentages of households with a transfer as well as the conditional present values of transfers received (in absolute terms). Additionally, we tackle the crucial question of how important are wealth transfers for the current distribution of household net worth<sup>2</sup> in Europe, computed as the capitalized present values of transfers as a percent of net worth. For both parts we observe different patterns along the distribution of wealth, income and age.

The paper is structured as follows: In section 2 we give an overview of the literature about wealth transfers in absolute and relative terms in developed countries. In section 3 we describe the data we are using, the Household Finance and Consumption Survey (HFCS), as well as our reasoning concerning the country selection. We also give an overview of the inheritance and gift taxation in each country and explain our reasoning behind the hypotheses. In section 4 we present the distribution of intergenerational transfers in the Euro-area in absolute terms and analyze the sociodemographic characteristic of heirs applying several regression analyses via logit and OLS. Additionally, we analyze the role of past intergenerational transfers for current net worth using

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<sup>1</sup> Periodical intergenerational transfers are counted as income.

<sup>2</sup> Definition: Assets minus liabilities.

recently established methods by Wolff & Gittleman (2014) and Piketty et al. (2014) as well as a fractional logit model explaining the relative importance of transfers received. Section 5 concludes.

## 2. Literature

The percentages of households with a transfer as well as the present values of transfers received are known for several countries. Furthermore, the determinants of these variables are investigated in a descriptive and multivariate manner.

### 2.1 The role of inheritance and *inter-vivos* transfers in absolute terms

Künemund & Vogel (2011) provide an overview of the studies for Germany (for example, works by Kohli et al. 2006, Kohli et al. 2005), finding that transfers are positively correlated with education, income and wealth of both the donors as well as the recipients. For Germany it is well established that parents of children with higher education usually also hold a higher degree, which, in turn, results in higher income and more possibilities to accumulate wealth to bequest (see for example Deutsches PISA-Konsortium 2001). In addition, the offspring also typically cash in on their higher education, profiting from higher earnings and savings. Szydlík & Schupp (2004) find that there are no differences between genders. Beckert (2013) report that until the beginning of the 19<sup>th</sup> century, first born men tended to receive everything in many European countries. Braun et al. (2011) add that, typically, most people bequeathing wealth are older than 70 years and heirs are those between 40 and 60 years. However, their main focus is on future transfers. Albuquerque (2014) also describes a downward flow of monetary gifts from parents to their children for several countries in Europe, which may either be motivated by altruism, an accident, or in a strategic manner (Brunner 2014). In the first case parents gain utility from knowing that their children will enjoy their bequest. In the second it is assumed that lifetime is uncertain, thus, parents accidentally leave bequests if they die younger than expected. In the last case parents expect something from their children, such as visits, in exchange for a bequest. For Austria, Schürz (2007) finds that workers receive wealth transfers less often than the average household; while entrepreneurs receive, on average, the highest transfers. Karagiannaki (2011) and Wolff & Gittleman (2014) report similar findings for the UK and the US, respectively.

Studies comparing several countries are rare: Semyonov & Lewin-Epstein (2013) report the percentage of households older than 50 that received inheritances for many European countries, Israel, and the US. The data (for most countries SHARE) was collected between 2004 and 2007. The prevalence range between 46.2% in Switzerland, followed by Belgium with 42%, to 17% in Austria, and 4.4% in the UK. Schürz (2007) and Fessler et al. (2008) relate means and medians for heirs and

non-heir households and come to the conclusion that the heir-households are better off with regard to their social situation. They use LWS data, which was surveyed around the year 2000.

## 2.2 The role of inheritances and *inter-vivos* transfers in relative terms

Analyzing inheritances and *inter-vivos* transfers in relative terms, meaning the capitalized present values of transfers as a percent of net worth, requires decisions that imply methodological differences. Namely, Modigliani (1986, 1988) solely adjusts past wealth transfers for inflation to compute the present value of wealth transfers. Conversely, in Kotlikoff & Summer (1981) and Kotlikoff (1988), past wealth transfers are additionally capitalized, with the reasoning that transfers are usually invested in some kind of portfolio and are not held in cash. The first case results in quite low shares of current wealth due to past wealth transfers (at most 25%). The second approach yields shares that are considerably higher (45 to 80% of wealth due to past wealth transfers). However, both approaches have in common that the share of wealth transfers due to past wealth transfers can exceed 100%, as the summarized past transfers are not capped at a household's net worth. Piketty et al. (2014) explicitly combine the two rival approaches (for details see section 4). However, as Piketty et al. use data from the late 19<sup>th</sup> and early 20<sup>th</sup> century, their results are only of historical interest and not immediately relevant to the 21<sup>st</sup> century. Wolff & Gittleman (2014) using the same method, find for the US in 2007 that the present value of transfers as a percent of net worth varies between 20 and 25%. Bönke et al. (forthcoming) analyze, in a study similar to this one, the role of inheritances and gifts for the total net worth of West Germany in 2010. They conclude that one-third of wealth is the result of capitalized wealth transfers. Additionally, they compute that the share of wealth transfers on total net worth for the richest one percent might exceed 80%.

Our analyzes in section 4, as well as the studies from Piketty et al. (2014) and Wolff & Gittleman (2014), are based on the joint distribution of wealth and capitalized wealth transfers, which we use to compute the relative importance of wealth transfers. Only a few studies use comparable data; some studies need additional assumptions in order to apply macroeconomic estimation techniques. Reil-Held (2004) estimates that inheritances and gifts account for approximately 34% of Germany's total net worth;<sup>3</sup> another macroeconomic estimate, from Piketty & Zucman (2015), is considerably higher: 51%. For France, Kessler & Masson (1989) estimate that the share of wealth transfers is 35%. The value computed by Klevmarken (2004) for Sweden is 19%. To the best of our knowledge, cross-

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<sup>3</sup> Note that the HFCS only surveys inheritances and gifts that are received from a person not living within the same household. Any macroeconomic estimate will include tax-relevant transfers within households (e.g. widowhood) and should be, logically, higher than results based on the HFCS for intergenerational transfers.

country analyses analyzing the impact of intergenerational wealth transfers on the distribution of wealth in absolute and relative terms are not available yet.

### 3. Data, country selection and institutional environment

The *Household Finance and Consumption Survey* (HFCS) contains information about households'<sup>4</sup> net worth, income and indicators of consumption, and credit constraints from almost all Euro-countries<sup>5</sup> around the year 2010 (ECB 2013a, 2013b). In addition, it contains information about intergenerational wealth transfers from outside the household. Each household's reference person<sup>6</sup> retrospectively answered a question about how many inheritances or substantial gifts the household received from any person who was not a member of the same household.<sup>7</sup> Consequently, the total number and amount of wealth transfers is underestimated because, among others, transfers due to the death of a partner who was part of the same household are not included. In addition, it affects the comparisons of countries with different household structures e.g. adult children still living with their parents. In the HFCS survey, the value of up to three intergenerational transfers was collected. In a separate module the mode of acquisition of the household main residence was collected; the choices include "inherited" and "gifted."<sup>8</sup> In the questionnaire, the respondents sorted the transfers according to their subjective importance for their current financial situation.<sup>9</sup> It is also collected in which year the household received the transfer, what kind of assets the portfolio contained, if it was a gift or inheritance, and from whom it was received.

#### 3.1 Country selection

The HFCS "is a milestone for cross-country comparisons" and its data quality with regard to institutional environment, relevance, coherence, timeliness, accessibility, comparability and accuracy is quite high (Tiefensee & Grabka 2015, p. 29). Nevertheless Tiefensee & Grabka (2015) show that net worth positions are not unlimitedly comparable between all countries due to

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<sup>4</sup> Our unit of analysis is, therefore, the household and not the individual.

<sup>5</sup> Austria, Belgium, Cyprus, Finland, France, Greece, Germany, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia and Spain. Estonia, Ireland and Latvia will take part in the next wave.

<sup>6</sup> For selection criteria see ECB (2013a), pp. 16-17.

<sup>7</sup> As past wealth transfers are collected retrospectively, it is highly likely that the data is plagued by under-reporting problems and the estimates are biased downwards. This is even more probable the more members live in a household. We do not know, and it is hard to quantify, whether under-reporting varies systematically for different age classes or demographic characteristics of the respondents.

<sup>8</sup> In France, household main residence is part of the same intergenerational transfers module and not collected separately.

<sup>9</sup> This implies that the sorting does not generally reflect the absolute value of the transfer, but it should be closely related.

methodical differences. Based on their analysis and the fact that not all countries surveyed wealth transfers, we include the following countries in our analysis: *Austria, Belgium, France, (West) Germany, Cyprus, Greece, Portugal and Spain*.<sup>10</sup>

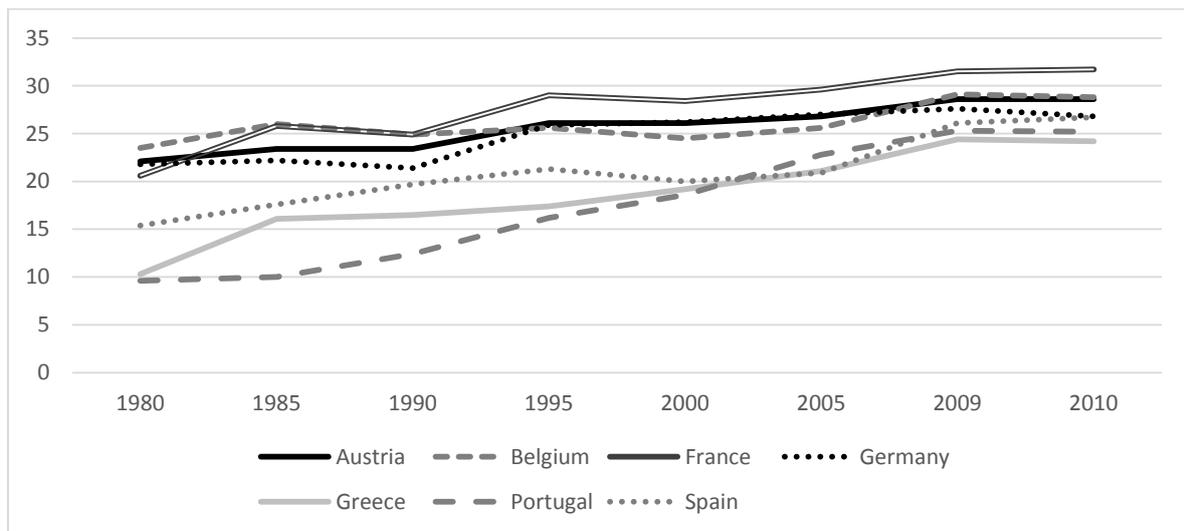
To account for the different historic, economic, and welfare state backgrounds, as well as household structures, we divide our country selection into two groups. The first four countries (core European countries) possess a generous welfare state regime at least since the 1980s and, on average, small households with similar structures (based on figure 1, ECB 2013b, and Fessler et al. 2014). The Mediterranean countries comprise the second group with, on average, larger households and less generous welfare state expenditures. In addition, these countries were without stable financial markets – and consequently, without comparable investment opportunities – due to e.g. civil wars and military dictatorships for several years following the Second World War.

The decision was less influenced by the age structure in those countries, which is rather similar in all countries. About two-thirds of the population between 15 and 65, and the share of children younger than 15 is generally below 16% (except for France). The percentage of persons in retirement age varies between 18 and 21%; Cyprus is the only outlier, at 11%. However, the household structure does affect the median net worth and, consequently, the patterns of transfer reception in private households. Larger households tend to accumulate more wealth, especially with respect to real estate, than smaller households, which are more prevalent in Austria and Germany (ECB 2013b). Likewise, owner-occupied real estate is likely to be transferred as inheritance, while financial wealth might be passed on to the next generation as inter-vivos transfers.

The welfare state regime influences the accumulation of wealth and, therefore, in the long run may have an effect on the role of wealth transfers within a society. In less generous systems households accumulate more private wealth in order to be prepared for a rainy day or for retirement (Fessler & Schürz 2015).

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<sup>10</sup> For Germany, we base our analysis on the western part due to problems of capitalization for past intergenerational transfers that date from before the fall of the wall. For the rest of the analysis, we use Germany and West Germany as synonyms. We restrict the analysis to households with a head of at least 21 years of age. Additionally, not all countries in the HFCS oversample wealthy households. Therefore, our analysis for most countries is likely not representative for the very top (Vermeulen 2014). To account for missing values, the data is multiply imputed (five imputates) by the data providers (ECB 2013b). Our calculations are based on standard applications for multiply imputed data; we use the provided replicate weights and all standard errors are bootstrapped.

**Figure 1 | Social expenditure as percentage of GDP<sup>a</sup>**

Source: OECD.Stat (2015).

<sup>a</sup> Data for Cyprus is not available from OECD.Stat.

### 3.2 Inheritance and gift taxation

The inheritance and gift taxation background is quite diverse for the different countries. However, some common patterns can be discovered (based on graph C and the legal frameworks of the individual countries). We define three types of gift and inheritance taxation regimes: (1) no or low inheritance and gift tax; (2) moderate inheritance and gift tax with moderate or high allowances; and (3) high inheritance and gift tax with low or moderate allowances. Higher taxes and lower allowances have a decreasing effect on the level of gifts and inheritances – at least on the net value (Brunner 2014). As demonstrated by Piketty (2014) the wealth transfer flow collapsed following the shocks of 1914-1945, but again gained momentum starting in the 1990s in several European countries (namely France, Britain and Germany). In addition, figure 2 demonstrates that tax revenues diverged, particularly in the 2000s. Therefore, our analysis of the institutional backgrounds starts in 2000 and ranges through the time of the survey (year 2010). For a more thorough summary, we refer to appendix A, where all key information is provided in table form.

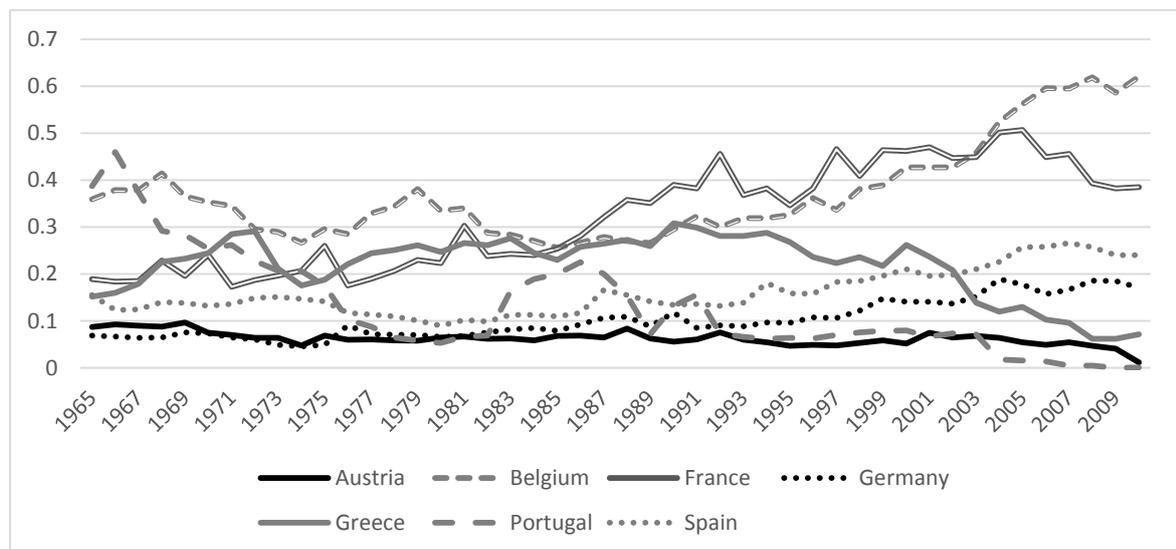
The first group (no or low inheritance and gift tax) consists of Cyprus, Austria and Portugal. Cyprus and Austria abandoned the taxation of inheritances and gifts completely after 2000/2008, respectively, with only a land transfer tax levied, which is in the one-digit area. In Austria, before 2008 the taxation depended on the level of relationship between testator and heir, with tax rates moderate or high, but tax allowances low. In Portugal since 2004 only a stamp duty is levied on all wills. Transfers between spouses, or other immediate relatives, are largely exempt. Before the changes occurred, tax rates were moderate and tax allowances low.

The second group (moderate taxation of inheritances and gifts with moderate or high tax allowances) consists of Greece and Germany. In both countries the tax rate varies depending on the relationship and the value of the transfers received. The tax rates are lower in Greece, the tax allowances higher in Germany where they become usable again after 10 years.

The third group (high inheritance and gift tax with low or moderate tax allowances) consists of Spain, France and Belgium. In Spain the applicable tax rate varies not only depending on the relationship and the value of the transfers received, but it also takes into account the net worth of the heir. However, since 2004 some regional governments factually abandoned the taxation of wealth transfers. The tax system in France is similar to that in Germany, but with higher tax rates and lower allowances. In Belgium we observe varying gift taxes depending on the region, the relationship, and the value since 2001; and for inheritance tax since 2002. Another peculiarity in Belgium is a considerable difference between the taxes on inheritances and gifts.

Almost all countries we consider have more or less extensive exemption clauses applying to the transfer of businesses and owner-occupied property.

**Figure 2 | Inheritance and gift tax revenue as percentage of GDP<sup>a</sup>**



Source: OECD.Stat (2015).

<sup>a</sup> Data for Cyprus is not available from OECD.Stat.

### 3.3 Hypotheses

With regard to the previous literature and the historic and institutional backgrounds we hypothesize that (1) incidence and levels of wealth transfers increase with age, wealth, income and education of the household in all investigated countries. This is because older relatives passed away, and education is intergenerationally correlated, which, in turn, also leads to higher income and wealth for both parents and children. However, (2) transfer values will be higher in the Core European

Countries compared with the Mediterranean ones due to lower financial wealth and higher real wealth<sup>11</sup> levels, but low transfer rates as more family members still live under one roof. Furthermore, we assume that (3) based on the tax regimes in the Mediterranean countries the levels will be the highest in Cyprus (no inheritance and gift tax since several years) and the lowest in Spain. In the Core European countries they will be the lowest in Belgium. In addition, we assume that (4) the share of current wealth due to past transfers will not exceed 50 percent<sup>12</sup> in any country and (5) will be lower for the Mediterranean countries due to their history and the overall higher average and median net worth levels.

#### 4. Who receives wealth transfers and what is the value of the transfers received?

In the first step of our empirical analysis (see 4.1 and 4.2) we give an overview of the distribution of intergenerational wealth transfers<sup>13</sup> from outside the household (as defined by the HFCS questionnaire) for eight European countries. We first tabulate the incidence as well as the conditional mean values of inherited wealth. We calculate the present value of all past wealth transfers so far that a household received, in 2010 prices, and capitalize the past wealth transfers using a real annual rate of return of three percent. In the second step we calculate the capitalized present value in prices of 2010 as a percent of private net wealth (relative value of transfers). The whole analysis relies on the intertemporal budget constraint of private households as described by Piketty et al. (2014) in more detail. In short, the idea is as follows: for all households we observe the joint distribution of all past wealth transfers and net worth at time  $y$ . Note that  $y = 2010$  on average for the surveyed households in our analysis. We capitalize the past wealth transfers using a real annual rate of return  $r$ , which yields the present value of wealth transfers  $PVWT_{yi}$  for all households  $i$  in any sample or subsample at time  $y$ . This deserves an explanation: we assume that at the point in time any household receives a wealth transfer it always has the option to make a secure investment yielding a real rate of return  $r$ . Hence, similar to Wolff & Gittleman (2014), we calculate the present value of wealth transfers

$$PVWT_{yi} = \sum_{t=t_0}^y WT_{ti} * e^{r(y-t)}. \quad (4.1)$$

<sup>11</sup> Usually real estate that is only passed on after death.

<sup>12</sup> The macro estimations from other studies, like Reil-Held (2004), Kessler & Masson (1989), Klevmarken (2004) and Piketty & Zucman (2015) for several countries, are at most 51%. This kind of data includes tax-relevant transfers within the households and should, therefore, necessarily be higher than ours.

<sup>13</sup> Gifts and inheritances are analyzed together. If only looking at gifts, the sample sizes are quite small in some countries. This is probably due to missing tax incentives in these countries and different asset portfolios (e.g. if households mainly possess a household main residence it will be most likely be passed on after death).

For each single household,  $i$ , in our sample we determine the actual sum of inheritances and gifts based on our assumptions: If a household's net worth is larger than the present value of transfers, it follows that the household has real savings as high as the residual ( $W_{yi} - PVWT_{yi}$ ). If a household has a net worth less than the present value of wealth transfers, we conclude that the household consumed part (or all) of the wealth transfer instead of choosing a secure financial market investment (or lost over time). The residual resulting from the secure investment is, therefore, interpreted as the household's savings as it was the investment decision of the household to either invest differently (and potentially more risky) or consume the wealth transfer. The total present value of wealth transfers for any given country  $j$  in year  $y$  is then given by

$$TPVWT_y = \sum_i \min(PVWT_{yi}, w_{yi}). \quad (4.2)$$

Additionally, we are interested in calculating the total value of wealth transfers as a percent of positive net worth

$$\beta_y = \frac{TPVWT_y}{\sum_i w_{yi}} = \frac{TPVWT_y}{W_y}. \quad (4.3)$$

Overall, in line with Piketty et al. (2014), any country's population can be divided into three groups of households. For those households that (1) never received a transfer or has negative net wealth,  $\beta_{yi}$  is always zero. For those households that (2) received a transfer and the present value falls below the net worth,  $\beta_{yi}$  is the ratio of the present value to net worth  $w_{yi}$ . For the third group of households that (3) received a transfer but the present value exceeds the net worth in year  $y$ , it follows that  $\beta_{yi}$  is 100%, hence all of the net worth can be attributed to the transfers, as the household consumed more than he could have afforded from its own labor or deviating investment decisions. Based on this reasoning we conclude that the residual that cannot be attributed to the inherited portion of the net worth is the result of a household's saving decision and attributed to the portion resulting from its own efforts.

The most arbitrary assumption in our analysis is the choice of the real rate of return  $r$ . The base rate we choose is  $r = 3\%$  in accordance to Wolff & Gittleman (2014). Very similar to Wolff & Gittleman, we add a few robustness checks (see appendix B) in order to identify systematic changes, if we vary the real rate of return between  $r = 1\%$  and  $r = 5\%$ . Additionally, we check the variation of  $\beta_{yj}$  depending on a wealth related rate of return, as it seems reasonable that richer households are financially better educated, have the possibility to invest more diverse and, therefore, might realize higher rates of return (these results are presented in the appendix). For some countries (Austria, Belgium, France and Germany) it would also be possible to use the yields of investments in long-term government bonds, as these investments are in line with our definition of a secure investment.

As the time series are not available for all countries from the 1950s onward, we add the results to the appendix B and note that the differences to a flat real interest rate of 3% are negligible.

As already discussed in section 2, traditionally, for these kinds of estimates, the methods for calculating  $\beta_y$  are different from the method we choose. The approaches from Modigliani (1986, 1988) and Kotlikoff (1988) have in common that they used a (capitalized) present value of wealth transfers that is not capped at 100% of the household net worth, resulting in estimates of  $\beta_y$  that may very well be far above 100% for certain parts of the population, which rather consume than save. As we want to estimate the importance of wealth transfers along the current distribution of net worth, we find it more intuitive to calculate the present value of wealth transfers that are actually still part of any given household's wealth portfolio. Piketty et al. (2014) give a more comprehensive understanding on this classic debate; with our decision to cap the value at 100%, we follow their recommendation.

#### **4.1 Incidence and levels of past intergenerational transfers**

As shown in Table A, the incidence of transfers received varies slightly across the European countries we analyze. In Portugal, the share of households that received at least one wealth transfer is the lowest (27%), with the highest shares observed in West Germany (38%) and France (roughly 40%).

The higher the observed net worth of a household is, the higher is the likelihood that it reports a wealth transfer. The picture is very similar for all countries in our analysis. For the population reporting a net worth below €20,000 it is well below 20% and then it quickly rises from 70% to 75% in countries where this correlation seems to be the most pronounced (see Austria, France and West Germany).

In the core European countries, we find that with increasing household income<sup>14</sup> the probability that a household already received a wealth transfer increases. Households finding themselves in the highest income quintile record double the incidence of transfers (more than 50% of all households) as compared to the first quintile. The Mediterranean countries on the other hand do not exhibit similar variation along the distribution of income. For instance, in Portugal the incidence varies independently of income around 25%. This is, amongst other things, explained by the expansion of secondary and tertiary education since the 1960s, which has greatly improved the educational mobility for the current generation of heirs.

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<sup>14</sup> The current gross household income refers to the last 12 months / the last calendar year before the time of the survey and is composed of the following components: all earned income, pensions (public, occupational and private), unemployment benefits and other regular social transfers, regular private transfers, rental income, income from financial assets, income from private companies / partnerships plus additional other income.

In general, the likelihood that a household<sup>15</sup> reports a wealth transfer increases with age.<sup>16</sup> However, in addition to the lifecycle, cohort effects can be identified. Due to lifecycle effects, the age classes between 45 and 64 have significantly higher percentages of households with a wealth transfers than the younger age classes, as their older relatives (especially parents and grandparents) more likely already deceased. The age classes over 65, on the other hand, have decreasing percentages of households that report a wealth transfer. Their older relatives, of which the majority is likely to be deceased already, presumably lived in much poorer conditions (e.g. due to the two World Wars) and did not bequest (large) fortunes.

The patterns are very similar across Europe with a few exceptions. Some countries do not experience a drop for the oldest cohorts. In Portugal there are no significantly lower shares for the oldest cohorts compared to 30% for the age class between 55 and 64, the share seems to be up for the oldest cohort. The same is observed for Belgium, the share of households reporting a transfer stays at roughly 40% for the age classes 55 and above. A most interesting observation is Cyprus: the oldest cohort reports only half as many inheritances and gifts compared to the second oldest cohort, whereas the youngest cohort has the highest percentage of households with an inheritance or gift. One possible explanation is that the ancestors of the older household's heads did not possess much to bequest. In addition, it might be the case that the transfers' givers skipped one generation and directly bequeathed to the middle aged household heads.

In the next step, we look at the capitalized conditional mean present value of wealth transfers across Europe (see table B). Therefore, we limit the sample to all households reporting at least one transfer, adjusting the original values of transfers for inflation, capitalizing them and summing them up by households (see formula 4.1). Belgium and Greece are fairly close to each other (€155,000 and €152,000, respectively). The conditional mean present values in Austria and Germany are considerably higher (€230,000 and €193,000). Spain records €174,000 and France €137,000. There are two outliers: Portugal at only €85,000 and Cyprus at €274,000.

Not surprisingly, most countries experience a sharp rise in the conditional mean present value of transfers received from the second highest wealth level to the highest with household net worth above €1 million. For all countries the value at least doubles. Additionally, we observe considerable increases between the wealth levels €250,000 to €499,999 and €500,000 to €1 million. Generally, the conditional present value of the transfers seems to increase monotonically with the wealth level.

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<sup>15</sup> Most sociodemographic characteristics of the households are referring to its head. We use "household" and "household's head" synonymously.

<sup>16</sup> Age class according to the age of the head of the household as reported in the HFCS survey data. In the multivariate part we will investigate the last two age classes together due to the low numbers of cases.

The wealth levels above €250,000 show values in the six to seven-digit euros region, whereas for the lowest wealth level below €20,000 the conditional value never exceeds €10,000.

Among all households that received an inheritance or gift, the capitalized present value is highest in the highest income quintile. This confirms the strong relationship between a household's income position and the expected wealth transfers from previous generations due to low intergenerational mobility. While the incidence does vary less for Mediterranean countries, the absolute value does increase with income as in the core European countries.

Computing the conditional mean present value for age classes reveals that it is only for Belgium and France that it peaks for the oldest cohort aged 75 or older. In Portugal and Spain the variation across the age classes is rather low. In Austria we observe a spike for the age class 45 to 54 (€285,000), in Germany it only increases slightly for cohorts older than 44. The rather liberal legislation concerning the taxation of gifts clearly left its mark in the distribution for younger households. Overall, Austria, Greece, West Germany and Cyprus all exhibit a reversely U-shaped pattern. This is in line with the observations of the percent of households with transfers, i.e. not only did the middle aged households report having received a wealth transfer considerably more often, those transfers were considerably higher as well. Presumably, this is the result of the cohort effect offsetting the life-cycle effect in wealth transfers in those countries.

Table A | Percent of households with a transfer<sup>a</sup>

	I. Core European countries						II. Mediterranean countries									
	Austria		Belgium		France		West Germany		Cyprus		Greece		Portugal		Spain	
	mean	(std.err)	mean	(std.err)	mean	(std.err)	mean	(std.err)	mean	(std.err)	mean	(std.err)	mean	(std.err)	mean	(std.err)
<b>All households</b>	35.7	(1.3)	31.7	(1.2)	39.9	(0.7)	38.1	(1.7)	31.5	(1.7)	30.7	(1.5)	26.7	(1.3)	30.1	(1.1)
<b>A. Wealth levels</b>																
Under €20,000	11.6	(1.6)	12.9	(2.3)	17.9	(1.1)	13.1	(2.2)	7.9	(2.8)	4.1	(1.1)	11.8	(1.3)	7.9	(1.7)
€20,000 - €99,999	31.3	(2.7)	27.6	(4.2)	35.5	(1.9)	28.2	(3.2)	18.7	(4.4)	34.8	(2.9)	28.1	(2.1)	24.8	(2.7)
€100,000 - €249,999	45.8	(2.7)	27.6	(2.9)	44.5	(1.4)	49.3	(3.2)	30.3	(3.8)	39.4	(2.2)	34.9	(2.2)	27.4	(1.8)
€250,000 - €499,999	54.4	(3.2)	39.1	(2.7)	56.5	(1.5)	65.3	(2.9)	36.5	(4.3)	37.5	(3.9)	34.1	(3.5)	39.2	(2.5)
€500,000 - €999,999	71.6	(4.3)	48.8	(3.7)	69.0	(2.1)	63	(5.8)	38.1	(4.9)	42.7	(5.6)	33.4	(4.3)	46.4	(3.9)
€1,000,000 or over	68.4	(6.8)	51.3	(5.0)	75.1	(2.3)	69.7	(5.8)	51.7	(4.8)	51.1	(15.6)	44.5	(6.3)	62.1	(5.3)
<b>B. Income quintiles</b>																
1st quintile	26.2	(2.3)	25.3	(2.9)	31.0	(1.5)	24.6	(3.1)	22.8	(3.7)	28.3	(3.0)	26.5	(2.2)	32.9	(2.0)
2nd quintile	29.7	(2.7)	32.5	(3.2)	33.8	(1.6)	32.2	(3.8)	30.8	(4.1)	33.7	(2.6)	30.4	(2.6)	29.9	(2.1)
3rd quintile	34.3	(2.9)	27.6	(3.0)	38.2	(1.6)	37.6	(3.4)	30.3	(3.8)	31.4	(2.7)	26.6	(2.6)	25.2	(2.6)
4th quintile	38.0	(2.7)	35.0	(2.9)	43.1	(1.5)	44.6	(3.0)	40.3	(4.0)	29.2	(2.9)	26.2	(2.3)	29.8	(2.4)
5th quintile	50.3	(3.1)	37.9	(2.8)	53.2	(1.3)	51.8	(3.0)	33.1	(3.8)	31.0	(2.8)	24.1	(1.9)	32.9	(2.3)
<b>C. Age classes</b>																
21 - 35	22.9	(2.4)	16.1	(2.8)	24.8	(1.6)	22.3	(3.8)	28.7	(4)	22.5	(1.9)	12.9	(2.3)	16.0	(2.3)
35-44	34.8	(3.1)	25.3	(2.9)	32.0	(1.5)	36.1	(3)	31	(3.8)	34.3	(2.6)	20.8	(2.4)	20.4	(2.1)
45-54	38.6	(2.5)	29.2	(2.8)	38.3	(1.6)	46.8	(3.1)	38.3	(3.6)	33.8	(2.8)	28.0	(2.3)	33.0	(2.2)
55-64	44.4	(2.4)	43.0	(3.1)	51.7	(1.7)	46.2	(3.4)	33.3	(4.2)	33.4	(3.3)	30.5	(2.3)	40.6	(2.6)
65-74	37.1	(3.1)	40.0	(3.2)	51.9	(1.7)	39.9	(3.6)	31.5	(4.7)	30.4	(3.0)	29.9	(2.3)	40.7	(2.3)
75 and older	35.1	(4.5)	42.2	(3.4)	46.1	(1.9)	33.5	(4.2)	17.2	(4.9)	30.6	(3.6)	34.2	(2.5)	32.7	(2.2)
<b>Sample size (n)</b>	2,337		2,307		14,929		2,826		1,234		2,915		4,393		6,188	
<b>Weighted in Mio. (N)</b>	3.71		4.66		27.51		28.64		0.30		4.06		3.92		16.97	

Source: own computations from the HFCS survey wave 1 (2013). Standard errors are shown in parentheses. Means over 5 implicates, standard errors bootstrapped.

<sup>a</sup>The figures record the proportion of households who indicate receiving a wealth transfer at any time before the time of the survey.

Table B | Mean present value of transfers received (in €1,000), in 2010 prices and capitalized with  $r = 3\%$ , recipients only<sup>a</sup>

	I. Core European countries						II. Mediterranean countries									
	Austria		Belgium		France		West Germany		Cyprus		Greece		Portugal		Spain	
	mean	(std.err)	mean	(std.err)	mean	(std.err)	mean	(std.err)	mean	(std.err)	mean	(std.err)	mean	(std.err)	mean	(std.err)
<b>Mean present value</b>	230	(19)	155	(10)	137	(4)	193	(13)	274	(23)	152	(8)	85	(7)	174	(11)
<b>Median present value</b>	110		77		46		107		165		113		38		77	
<b>A. Wealth levels</b>																
Under €20,000	6	(1)	6	(1)	5	(0)	6	(1)	6	(2)	10	(2)	6	(1)	6	(1)
€20,000 - €99,999	42	(3)	34	(5)	31	(2)	33	(3)	47	(7)	59	(2)	38	(2)	40	(3)
€100,000 - €249,999	118	(6)	98	(9)	73	(3)	116	(5)	133	(12)	141	(3)	82	(5)	85	(6)
€250,000 - €499,999	231	(13)	135	(12)	143	(5)	204	(12)	199	(22)	246	(13)	116	(14)	141	(9)
€500,000 - €999,999	435	(33)	220	(23)	256	(14)	414	(29)	277	(40)	436	(54)	252	(44)	300	(36)
€1,000,000 or over	904	(145)	478	(74)	739	(44)	818	(105)	584	(79)	931	(278)	696	(198)	734	(108)
<b>B. Income quintiles</b>																
1st quintile	119	(28)	116	(26)	73	(6)	97	(21)	157	(57)	98	(9)	50	(5)	98	(8)
2nd quintile	140	(21)	114	(14)	95	(8)	130	(20)	154	(26)	119	(10)	60	(6)	126	(14)
3rd quintile	205	(27)	142	(18)	95	(8)	158	(20)	266	(78)	151	(19)	63	(7)	148	(43)
4th quintile	226	(34)	173	(22)	113	(7)	194	(21)	344	(49)	167	(29)	65	(8)	180	(19)
5th quintile	361	(47)	208	(28)	252	(11)	304	(33)	389	(61)	226	(22)	201	(37)	310	(36)
<b>C. Age classes</b>																
21-35	176	(48)	60	(15)	45	(5)	116	(38)	244	(37)	139	(10)	42	(8)	149	(31)
35-44	197	(31)	131	(30)	97	(7)	188	(28)	287	(42)	152	(9)	81	(13)	164	(24)
45-54	285	(28)	136	(19)	133	(9)	196	(18)	296	(40)	193	(21)	65	(6)	171	(24)
55-64	239	(34)	154	(19)	141	(9)	201	(30)	310	(79)	191	(28)	83	(19)	190	(25)
65-74	245	(51)	170	(18)	176	(13)	233	(23)	242	(73)	93	(9)	104	(21)	173	(16)
75 and older	181	(49)	226	(33)	200	(14)	182	(22)	154	(36)	109	(18)	104	(18)	185	(48)

Source: own computations from the HFCS survey wave 1 (2013). Standard errors are shown in parentheses. Means over 5 implicates, standard errors bootstrapped.

<sup>a</sup>The figures show the present value of all transfers as of the survey year which were received up to the time of the survey in prices of 2010 using country specific inflation rates.

## 4.2 Correlates of the prevalence and value of transfers received

We estimate a logit model characterized by the specification

$$p_{ij} = F(\alpha_j + \beta_j X_{ij} + \varepsilon_j), \quad (4.4)$$

with  $p_{ij}$  denoting the probability of households  $i$  in country  $j$  of having received a transfer,  $\alpha_j$  is an intercept,  $\varepsilon_j$  are unobservable variables.  $X_{ij}$  is the matrix of all explanatory variables: age, education, work and marital status as well as gender of the reference person, income<sup>17</sup> of the household and its size.<sup>18</sup> Additionally, we estimate the following OLS specification:

$$y_{ij} = \alpha_j + \beta_j X_{ij} + \varepsilon_{ij} \quad (4.5)$$

with  $y_{ij}$  denoting the capitalized present value of all wealth transfer for households  $i$  in country  $j$ . We sum up all past wealth transfers in prices of 2010.  $\alpha_j$  is the intercept and  $\varepsilon_{ij}$  denotes unobservables.  $X_{ij}$  is the matrix of all explanatory variables, which are the same as for the logit estimation.

The results regarding the probability of receiving a transfer in the individual countries are shown in table C. Table D shows the results for the OLS regressions regarding the mean intergenerational wealth transfer value (as log) in each country for the heir population only. The independent variables include typical sociodemographic characteristics of the household and its head.<sup>19</sup>

We confirm part of our findings<sup>20</sup> from the descriptive part regarding the age of the household head. Again life-cycle effects are visible: With increasing age, the likelihood of losing family and friends and, thus, receiving a wealth transfer is monotonically increasing for most countries. The age classes between 45 and 64 have, for almost all countries, significantly higher probabilities of having already received a transfer than the younger ones. However, the cohort effects, decreasing transfers for old cohorts due to poorer living conditions, which are reported in table A, are not visible or significant once we control for other sociodemographic variables. In Austria, Belgium and France the lifecycle patterns of transfer recipients are the most pronounced and significant. For the mean present value

<sup>17</sup> In the HFCS gross income was collected, usually referring to the calendar year prior to the survey year or the 12 months preceding the survey.

<sup>18</sup> Except for income, all explanatory variables relate to the time of the interview (around the year 2010). Due to endogeneity, net worth is not used as an explanatory variable. Further information about the transfers cannot be used in the analysis due to the pooled estimation of all three transfers plus the household main residence.

<sup>19</sup> To use the household head as reported in the survey (which is usually the financially knowledgeable person of the household) is common standard in the literature (for selection criteria see ECB (2013a), pp. 16-17). However, in an alternative specification we used the oldest person in the household as its head. The results suggest that the estimates are fairly robust against varying definitions of the reference person.

<sup>20</sup> If not otherwise noted, only results that are significant at least at the 10 percent level are reported.

(table D) of those who received a transfer, in many countries the 45 to 54 age cohort has received higher transfers than younger cohorts. In Germany and France the age class 65 plus confirms the life-cycle effects – the conditional mean transfers are the highest for the oldest cohort.

For the income of the whole household the following pattern emerges: The higher the income, the higher the probability that the household reports a wealth transfer. This is especially pronounced in the core European countries. Both findings also hold for the average amount of transfers a household receives: Households of higher income quintiles tend to report higher transfers. This is the case in the majority of our sample. The pattern is most salient at the edges of the income distribution. These findings are probably connected to those regarding education and intergenerational mobility: In the core European countries, we find for all countries that households with primary education had a smaller probability to receive a transfer compared to those with secondary education. Households with tertiary education, on the other hand, are characterized by higher probabilities. Interestingly, in Spain households with lower education had a higher chance to receive a transfer and in Cyprus households with a higher education had smaller chances, as compared to secondary education. This might be a hint that intergenerational mobility is still comparatively high in these countries. In Portugal and Greece there are no significant differences across education levels. However, considering the present values, the relationship between education levels and the value of transfers received is very pronounced in Portugal and Greece, i.e. those households that received a transfer expect a higher value if their head has tertiary education. This is also the case in France. Research suggests that children of parents with higher education usually also hold a higher degree, which in turn results in higher income and more possibilities to accumulate wealth to bequest (see for example Deutsches PISA-Konsortium 2001).

Looking at work status, we find that self-employed households (compared with employed ones) have, in the majority of the countries, a higher chance to receive a transfer and, also, a larger transfer. One explanation for this might be that the self-employed often inherit the business that they are working for. Compared with the status married, households led by widowed or divorced persons have smaller chances of having received an inheritance or gift. Keep in mind that the inheritance from the deceased spouse is not reported in the survey, if the spouse used to be part of the same household (see section 3). In the case of a divorce, it is logical that the incidence is reduced because high transfers mostly come from (grand-)parents(-in-law), and after a divorce the chances naturally halved for a household. Differences between genders are only significant in Austria, Cyprus and Spain.

Taken together the patterns we find for the probability to receive a transfer and the average transfer value for the heir population are quite similar over the countries. Specifically, the correlations

between education and income with the present values of transfers received are high for all countries. The question arises, what exactly is the role of wealth transfers for the overall wealth situation of households in Europe? In the next section we explore household's net worth and transfers simultaneously by computing the transfers received as a percent of observed net worth, thereby obtaining an indicator for the impact of wealth transfers on the distribution of net worth.

Table C | Logit regression for probability of wealth transfer received

Logit	AT	BE	FR	W-DE	CY	GR	PT	ES
Age 21-34	-0.628*** (0.202)	-0.664** (0.274)	-0.589*** (0.120)	-1.074*** (0.294)	-0.815*** (0.289)	-0.401** (0.176)	-0.750*** (0.246)	-1.003*** (0.233)
Age 35-44	-0.175 (0.182)	-0.175 (0.215)	-0.240** (0.0999)	-0.583*** (0.195)	-0.456* (0.251)	0.122 (0.167)	-0.389** (0.169)	-0.571*** (0.190)
Age 55-64	0.561*** (0.170)	1.034*** (0.244)	0.454*** (0.115)	0.175 (0.178)	-0.225 (0.292)	0.0907 (0.175)	0.137 (0.177)	0.284 (0.192)
Age 65plus	0.369* (0.223)	1.097*** (0.333)	0.432*** (0.167)	0.170 (0.266)	0.135 (0.530)	0.0704 (0.221)	0.244 (0.211)	0.0284 (0.223)
1 <sup>st</sup> income quintile	-0.485** (0.221)	-0.154 (0.248)	-0.465*** (0.111)	-0.232 (0.231)	-0.109 (0.330)	-0.127 (0.184)	-0.206 (0.183)	0.150 (0.203)
2 <sup>nd</sup> income quintile	-0.250 (0.189)	0.129 (0.251)	-0.285*** (0.104)	-0.109 (0.205)	-0.294 (0.281)	0.154 (0.161)	0.0595 (0.172)	0.162 (0.206)
4 <sup>th</sup> income quintile	0.141 (0.177)	0.355 (0.247)	0.255*** (0.0946)	0.135 (0.205)	0.0862 (0.271)	-0.106 (0.210)	-0.0650 (0.177)	0.226 (0.214)
5 <sup>th</sup> income quintile	0.466** (0.198)	0.391* (0.215)	0.541*** (0.0945)	0.237 (0.211)	0.0568 (0.271)	-0.0708 (0.174)	-0.0433 (0.179)	0.0968 (0.207)
Education primary	-0.242* (0.139)	-0.458*** (0.169)	-0.252*** (0.0752)	-0.421** (0.200)	-0.0688 (0.240)	0.123 (0.148)	0.157 (0.175)	0.370** (0.153)
Education tertiary	0.446*** (0.155)	0.260* (0.150)	0.418*** (0.0768)	0.421*** (0.163)	-0.337* (0.198)	-0.0760 (0.156)	-0.000655 (0.177)	0.174 (0.175)
Work status self-employed	0.671*** (0.181)	0.132 (0.289)	0.259** (0.110)	0.277 (0.195)	0.415 (0.294)	0.607*** (0.141)	0.568*** (0.195)	1.266*** (0.213)
Work status unemployed/other	0.0148 (0.200)	-0.228 (0.220)	-0.0882 (0.128)	-0.131 (0.212)	0.109 (0.294)	0.211 (0.152)	-0.0420 (0.175)	0.254 (0.158)
Work status retired	0.153 (0.188)	-0.271 (0.284)	0.467*** (0.134)	-0.00229 (0.244)	-0.697 (0.468)	0.0547 (0.186)	0.148 (0.181)	0.586*** (0.210)
Marital status single	0.0736 (0.191)	-0.0240 (0.223)	-0.0858 (0.103)	0.376 (0.229)	-0.364 (0.401)	-0.0395 (0.194)	-0.178 (0.185)	0.849*** (0.180)
Marital status widowed	-0.107 (0.242)	0.354 (0.245)	-0.331** (0.128)	-0.263 (0.273)	-1.239*** (0.472)	0.0255 (0.218)	-0.341* (0.185)	-0.00295 (0.218)
Marital status divorced	-0.482** (0.229)	-0.305 (0.228)	-0.174 (0.113)	-0.137 (0.217)	-0.530 (0.381)	-0.0298 (0.212)	-0.676*** (0.211)	-0.386 (0.245)
Gender man	-0.262** (0.104)	-0.0936 (0.134)	0.0332 (0.0720)	-0.218 (0.134)	-0.0377 (0.194)	0.0188 (0.128)	0.120 (0.117)	-0.0712 (0.121)
HH size 1	0.352* (0.189)	-0.00604 (0.197)	0.175* (0.102)	-0.437** (0.205)	0.317 (0.382)	-0.143 (0.168)	0.327* (0.168)	-0.224 (0.186)
HH size 3	0.538*** (0.172)	0.0517 (0.203)	-0.221** (0.0996)	0.196 (0.193)	0.353 (0.264)	0.0171 (0.151)	-0.0722 (0.130)	0.0772 (0.152)
HH size 4	0.371* (0.214)	0.203 (0.233)	-0.184* (0.108)	0.475** (0.220)	0.170 (0.278)	0.173 (0.174)	0.112 (0.151)	0.324* (0.189)
HH size 5plus	0.777*** (0.236)	-0.141 (0.305)	-0.351** (0.138)	0.294 (0.268)	0.152 (0.300)	0.399 (0.298)	0.0235 (0.214)	-0.681** (0.269)
Constant	-0.920*** (0.200)	-1.062*** (0.270)	-0.615*** (0.128)	-0.245 (0.250)	0.350 (0.365)	-1.028*** (0.226)	-1.071*** (0.272)	-1.980*** (0.277)
Sample size (n)	2,380	2,296	15,004	2,828	1,220	2,971	4,399	6,197
Weighted in Mio. (N)	3.77	4.61	27.86	28.66	0.30	4.11	3.93	17.02

Reference groups: age 45-54, education secondary, work status employed, marital status married, gender women, 3<sup>rd</sup> income quintile, HH size 2  
Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Own computations from the HFCS survey wave 1 (2013). All 5 implicates are used, standard errors bootstrapped..

Table D | OLS regression for present value of wealth transfer received (heir population)

OLS	AT	BE	FR	W-DE	CY	GR	PT	ES
Age 21-34	-0.652** (0.272)	-0.567* (0.342)	-0.968*** (0.160)	-0.534 (0.361)	0.0316 (0.328)	-0.253** (0.125)	-0.492** (0.246)	-0.460 (0.332)
Age 35-44	-0.480** (0.202)	-0.450 (0.281)	-0.324** (0.127)	0.124 (0.214)	0.0659 (0.260)	-0.130 (0.0799)	-0.00676 (0.212)	-0.222 (0.214)
Age 55-64	0.0404 (0.231)	-0.0545 (0.297)	0.148 (0.126)	0.135 (0.194)	0.353 (0.341)	-0.0532 (0.165)	0.0332 (0.194)	0.107 (0.176)
Age 65plus	0.116 (0.279)	0.105 (0.355)	0.781*** (0.159)	0.903*** (0.269)	0.397 (0.648)	-0.319 (0.210)	0.380 (0.257)	0.174 (0.252)
1 <sup>st</sup> income quintile	-0.677** (0.263)	-0.612* (0.317)	-0.480*** (0.136)	-0.422 (0.314)	-0.0180 (0.431)	-0.251** (0.119)	-0.253 (0.242)	-0.577*** (0.213)
2 <sup>nd</sup> income quintile	-0.356* (0.201)	-0.413* (0.236)	-0.171 (0.119)	-0.120 (0.226)	-0.184 (0.403)	-0.204* (0.108)	0.0641 (0.196)	-0.103 (0.212)
4 <sup>th</sup> income quintile	-0.0106 (0.214)	0.328 (0.225)	0.190* (0.100)	0.337* (0.203)	0.605* (0.309)	0.00263 (0.163)	-0.0905 (0.277)	0.241 (0.205)
5 <sup>th</sup> income quintile	0.313 (0.227)	0.509* (0.265)	0.712*** (0.0905)	0.634*** (0.192)	0.455 (0.346)	0.228* (0.128)	0.475** (0.219)	0.427** (0.210)
Education primary	0.113 (0.212)	-0.206 (0.224)	-0.350*** (0.0914)	-0.242 (0.213)	-0.363 (0.278)	-0.192** (0.0951)	-0.619*** (0.199)	-0.229 (0.172)
Education tertiary	0.00948 (0.166)	0.208 (0.154)	0.334*** (0.0765)	0.213 (0.148)	0.176 (0.215)	0.299*** (0.108)	0.530* (0.281)	0.0562 (0.195)
Work status self-employed	0.632*** (0.198)	0.195 (0.414)	0.727*** (0.112)	0.608*** (0.193)	0.368 (0.291)	0.0939 (0.113)	0.638*** (0.190)	0.712*** (0.207)
Work status unemployed/other	-0.363 (0.268)	-0.394 (0.343)	-0.246 (0.184)	-0.0712 (0.248)	-0.326 (0.353)	0.0603 (0.0931)	0.236 (0.250)	0.165 (0.199)
Work status retired	0.0265 (0.256)	0.594** (0.265)	0.0697 (0.129)	-0.0881 (0.227)	-0.429 (0.623)	-0.00858 (0.188)	0.268 (0.210)	0.304 (0.278)
Marital status single	-0.0362 (0.226)	-0.411 (0.268)	-0.0772 (0.118)	-0.259 (0.312)	-0.702 (0.530)	-0.0802 (0.112)	0.0581 (0.212)	0.427** (0.210)
Marital status widowed	-0.512 (0.313)	-0.0266 (0.313)	-0.261 (0.162)	-0.217 (0.326)	-0.507 (0.585)	-0.0101 (0.143)	-0.122 (0.237)	0.145 (0.216)
Marital status divorced	-0.441 (0.306)	-0.145 (0.274)	-0.379*** (0.130)	-0.361 (0.280)	-0.307 (0.492)	-0.118 (0.155)	0.0700 (0.334)	-0.177 (0.264)
Gender man	0.162 (0.129)	-0.0346 (0.160)	-0.113 (0.0827)	-0.0907 (0.147)	-0.452** (0.209)	0.0522 (0.0814)	-0.0958 (0.182)	-0.269** (0.132)
HH size 1	-0.00521 (0.261)	-0.0127 (0.245)	0.123 (0.118)	-0.135 (0.269)	0.524 (0.532)	-0.102 (0.125)	0.0299 (0.245)	0.0682 (0.198)
HH size 3	0.416** (0.204)	0.128 (0.235)	-0.0553 (0.117)	0.0987 (0.173)	0.427 (0.278)	0.0945 (0.0874)	0.286* (0.166)	0.0523 (0.166)
HH size 4	0.481** (0.239)	0.0113 (0.311)	0.0489 (0.135)	-0.194 (0.262)	0.280 (0.333)	0.0680 (0.111)	0.188 (0.216)	0.0203 (0.214)
HH size 5plus	0.989*** (0.247)	-0.415 (0.363)	-0.255 (0.203)	0.383 (0.367)	0.108 (0.353)	-0.0421 (0.140)	0.334 (0.315)	-0.107 (0.356)
Constant	11.28*** (0.269)	10.86*** (0.285)	10.38*** (0.147)	11.01*** (0.218)	11.65*** (0.500)	11.74*** (0.143)	10.32*** (0.361)	10.94*** (0.281)
Sample size (n)	813	777	6,663	1,251	410	844	1,042	2,404
Weighted in Mio. (N)	1.30	1.42	10.34	10.71	0.91	12.4	1.01	5.09

Reference groups: age 45-54, education secondary, work status employed, marital status married, gender women, 3<sup>rd</sup> income quintile, HH size 2  
Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Own computations from the HFCS survey wave 1 (2013). All 5 imputates are used, standard errors bootstrapped..

### 4.3 Intergenerational wealth transfers and the distribution of wealth

In the last section, we find that the prevalence of transfers received differs greatly between socio-economic groups. In addition, some households have not yet receive a gift or inheritance, while others may never receive one. In this section, we investigate past intergenerational transfers as a percent of net wealth.

The present values of wealth transfers as a percent of net worth are shown in table E. Overall there are basically two tiers of countries. The first consists of the core European countries Austria and West Germany, and the Mediterranean country Greece. For these countries, the share is around 31%, meaning the share of inheritances and gifts is just under one-third in those countries. Rather low shares are computed for the second tier: Belgium, Portugal, Spain and Cyprus. In Portugal both the percent of households with a transfer and the conditional present values of those transfers tend to be lower than in the core European countries, resulting in an overall lower share (15%).

In Spain the mean present values tend to be on par with the rest of Europe (table B), however, households receive the wealth transfers later in their lifecycle. In combination with an overall higher net worth for Spanish households, the result is a rather low share of wealth transfers.<sup>21</sup> In Cyprus, the low share of wealth transfers is the result of a very high mean and median of net worth (ECB 2013b/c); the capitalized values of the transfers are rather low in comparison. The result for Belgium is surprisingly similar to most of the Mediterranean countries and differs greatly from France and Germany, which deserves an explanation. For one, the percentage of households with a transfer is significantly lower than in Germany or France, especially for the households with a net worth above €1 million. Since those households account for a great share of the wealth transfers in Germany and France and the overall wealth level in Belgium is rather high — the median net worth of all households is almost four times as high as in Germany (see ECB 2013b/c) — this results in an overall small fraction of the total Belgian net worth that can be attributed to capitalized wealth transfers.

The analysis of the relative importance of transfers along the distribution of wealth reveals two sets of countries. In Austria and West Germany the share of capitalized wealth transfers is highest for the wealth level €500,000 to €1 million and quickly decreases for the net worth above €1 million. Cyprus exhibits a similar picture, albeit on an overall lower level. On the other hand in Belgium, France, Portugal

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<sup>21</sup> Keep in mind that at the time the survey was conducted in Spain, the aftermath of the financial crisis was not yet fully in effect; housing prices were still high. A repetition of the survey with more up-to-date data presumably would reveal another pattern.

and Spain the shares do not vary a lot between the wealth levels and stay approximately at their overall level. In Greece we observe a pronounced U-shaped pattern. We conclude that for most countries the relative importance of wealth transfers does not significantly increase with the level of wealth. For the core European countries plus Cyprus it even decreases with a net worth higher than €1 million. This observation presents a stark contrast to the observations in the first part (tables A and B) — whereas the percentages of households with a transfer as well as the conditional present value of those transfers are increasing with the wealth level — the value of transfers as a percent of net worth drops for the wealthiest households. On the one hand, this result might show that those households accumulated a lot more of their large fortunes through their own efforts, independent of transfers. On the other hand, financially educated persons tend to have better options for investment, are less risk averse, and realize higher rates of return on their investment. The assumed real rate of return (3%) might simply be too low for those households. However, as can be seen in appendix B the patterns are largely robust against both overall higher interest rates and wealth-related interest.

The correlations between the relative importance of transfers received and the income position are less clear. Even though the present value significantly increases with income, a household's opportunities to save wealth from income flows are increasing as well, which results in a lack of variation, once we compare wealth transfers as a percent of net worth for several income quintiles (see Austria, Belgium and France). In West Germany, for the highest income quintile the percentage drops by about 17 percentage points as compared to the second highest. Overall, the high-income households receive significantly higher wealth transfers, but are equally capable of saving significant amounts, resulting in a decreasing relevance of inheritances and gifts for their wealth position.

Transfers as a percent of net worth are steadily increasing over the lifecycle in Belgium and France, as well as in Portugal and Spain. This is in line with the result that the cohort effect does not offset the lifecycle effect in those countries (see tables C and D). As expected from those same results, the connection is less clear in Austria and Germany, for the older cohorts the transfers as a percent of net worth is varying at around one-third. The younger cohorts exhibit rather high shares of transfers as well, but inter vivos transfers drive them: more than 50% of the transfers received are gifts. The high shares for younger generations hardly come as a surprise in Germany with rather generous tax exempt amounts (since 2009, €400,000 per child for an inter vivos transfer from each parent every ten years are free of tax, up from €205,000 before).

Spain exhibits a kind of U-shaped age pattern. Young households have a high share, because of low initial savings levels and high again for old households because of high absolute values of the capitalized wealth transfers. For middle-aged households the value of their own savings tends to be much higher than their relative low absolute transfer value. The differences between the age classes are minimal though. In Belgium, France and Portugal (as well as in Spain) the share increases with age and peaks for the oldest cohort. In Austria, West Germany, Cyprus and Greece the share of transfers as a percent of net worth is surprisingly high for some or all young cohorts. One of the reasons why the share is not substantially higher for older cohorts might be the Second World War and its aftermath, resulting in a situation where there simply was not much to inherit by heirs of the war generation.

Table E | Present value of wealth transfers received as a percent of net worth (real interest rate = 3)<sup>a</sup>

	I. Core European countries						II. Mediterranean countries									
	Austria		Belgium		France		West Germany		Cyprus		Greece		Portugal		Spain	
<b>All households</b>	30.9	(4.2)	14.4	(1.0)	23.2	(0.8)	31.4	(2.6)	12.8	(1.5)	31.4	(1.8)	14.8	(1.4)	18.0	(1.1)
<b>A. Wealth levels</b>																
Under €20,000	-		-		-		-		-		-		-		-	
€20,000 - €99,999	25.8	(2.8)	16.6	(3.5)	21.0	(1.6)	17.5	(2.5)	14.7	(4.3)	34.5	(3.1)	18.4	(1.5)	16.3	(2.0)
€100,000 - €249,999	31.6	(2.6)	15.5	(2.3)	18.8	(0.9)	34.8	(2.9)	23.4	(3.4)	35.1	(2.0)	18.2	(1.4)	13.7	(1.5)
€250,000 - €499,999	36.1	(2.7)	14.8	(1.6)	23.1	(1.1)	38.5	(2.7)	20.4	(3.5)	27.2	(2.9)	11.8	(1.6)	15.9	(1.5)
€500,000 - €999,999	45.9	(4.6)	16.0	(2.3)	25.6	(1.6)	39.2	(4.5)	14.9	(2.8)	27.3	(5.1)	12.1	(2.8)	20.1	(3.2)
€1,000,000 or over	23.9	(6.7)	12.2	(2.0)	24.5	(2.1)	22.6	(4.6)	10.0	(2.0)	34.9	(13.6)	12.8	(4.6)	21.4	(3.5)
<b>B. Income quintiles</b>																
1st quintile	41.4	(7.6)	18.7	(4.1)	26.8	(2.2)	39.3	(9.4)	13.3	(5.7)	36.8	(4.1)	19.5	(2.3)	22.6	(1.8)
2nd quintile	30.6	(9.1)	14.7	(2.4)	26.8	(2.1)	36.1	(5.6)	14.5	(4.0)	40.1	(3.9)	21.5	(2.5)	20.8	(2.3)
3rd quintile	34.0	(7.6)	12.4	(2.0)	23.0	(1.9)	39.6	(4.4)	19.2	(6.5)	33.9	(4.1)	15.2	(2.1)	15.8	(3.7)
4th quintile	30.3	(6.6)	15.8	(2.3)	21.5	(1.5)	37.7	(5.0)	19.5	(3.7)	30.1	(4.6)	12.5	(1.7)	18.5	(2.1)
5th quintile	29.2	(5.0)	13.3	(1.8)	22.7	(1.3)	25.4	(3.5)	8.0	(1.9)	26.1	(3.0)	13.2	(2.6)	16.7	(1.9)
<b>C. Age classes</b>																
21-35	35.7	(8.4)	8.9	(2.4)	16.3	(2.2)	34.5	(8.1)	23.4	(3.8)	32.1	(3.0)	8.5	(2.1)	16.5	(3.9)
35-44	24.0	(7.1)	12.6	(3.0)	15.9	(1.3)	36.7	(3.9)	13.3	(2.4)	33.1	(2.8)	13.2	(2.7)	15.3	(2.3)
45-54	28.0	(5.4)	10.7	(1.8)	18.6	(1.3)	34.5	(3.0)	11.6	(2.9)	35.3	(3.6)	12.2	(1.5)	16.4	(2.0)
55-64	34.9	(6.8)	15.1	(2.0)	21.0	(1.8)	24.2	(5.3)	11.2	(3.0)	31.3	(4.8)	11.0	(2.6)	17.5	(2.6)
65-74	37.3	(6.3)	13.6	(1.9)	27.7	(1.7)	32.1	(4.0)	12.3	(5.0)	21.2	(2.8)	18.9	(3.8)	21.4	(1.8)
75 and older	34.8	(9.6)	21.9	(3.2)	38.5	(2.3)	31.7	(5.1)	11.5	(4.0)	30.2	(4.7)	25.7	(3.9)	22.3	(4.6)

Source: own computations from the HFCS survey wave 1 (2013). Standard errors are shown in parentheses. All 5 imputates are used, standard errors bootstrapped.

<sup>a</sup>The figures show the present value of all wealth transfers as of the survey year which were received up to the time of the survey and accumulated at a real interest rate of 3.0% as a ratio to the respective net worth in the overall population or subpopulations.

#### 4.4 Correlates of the relative value of intergenerational transfers

Using a fractional logit model we further investigate the share of current wealth due to past wealth transfers for those who received a transfer. The advantage of this model is that it explicitly accounts for proportions in the (0, 1) interval. We estimate the following equation:

$$q_{ij} = F(\alpha_j + \beta_j X_{ij} + \varepsilon_j) \quad (4.6)$$

where  $q_{ij}$  denotes the sum of past wealth transfers as a percent of current net worth for households  $i$ , which received a transfer in country  $j$ . In addition to the inflation adjustment we capitalize transfers as a percentage of net wealth – with a cap at 100%, i.e. the sum of capitalized wealth transfers within a household cannot be possibly higher than the net worth of a household.  $\alpha_j$  is an intercept,  $\varepsilon_j$  denotes unobservables.  $X_{ij}$  is the matrix of all explanatory variables: age, education, work and marital status as well as gender of the reference person, income of the household and its size.

Table F shows the results for the fractional logit regressions analyzing capitalized inherited wealth in prices of 2010 as a percent of current household wealth. We look at all households that received at least one gift or inheritance. With regard to the age classes, the results do not reveal a unified pattern. It seems like the households over 65 have higher shares of current wealth due to transfers in comparison with the middle aged ones (45 to 54). However, this finding is only significant in France and Portugal. For the households under 45 the coefficients point into both directions, no matter if they are located in core or Mediterranean countries. Positive correlations give a hint that in Belgium and Spain younger households have already received large fortunes. So far they have had less time to accumulate wealth off their own income. Hence, transfers have a much higher impact on their financial situation than for older cohorts.

The income of the household matters: Compared with the third income quintile, the first and second quintiles show a positive relationship and the fourth and fifth a negative one. This means that with increasing income, wealth transfers exhibit a decreasing impact on inherited wealth as a percent of net worth. Naturally, with higher incomes it is easier to save income and accumulate wealth, thus, even though the absolute present value of transfers is higher for high income households, their relative importance is decreasing along the distribution of income.

Self-employed households have lower shares of current wealth due to past intergenerational transfers than employees (except for Spain). However, in the analysis it is assumed that all accumulated wealth exceeding the capitalization is due to own efforts, if business owners inherited their business and consistently generate a higher rate of return, the resulting wealth is defined as savings. For the self-employed population, an initial transfer might be the reason for the latter

wealth though. In the majority of the countries studied, singles have a higher share of current wealth due to past intergenerational transfers compared to households led by a person in marriage. For households led by a widowed or divorced person the share of past intergenerational transfers also tend to be higher, it seems that a divorce or widowhood is diminishing the possibilities to increase savings and accumulate wealth. The gender of the household head does matter significantly, especially in the southern European countries and France. Men have a smaller share of wealth transfers as a percent of net worth than women. As is shown in the first part, there are not many significant differences for absolute present value of transfers between men and women, resulting in the overall conclusion that, all things equal, men tend to accumulate more wealth.

Taken together many results from the absolute investigation are reversed. Especially the finding that the share of current wealth due to past intergenerational transfers is decreasing with income needs to be emphasized. Remember from the first part of this empirical analysis that those households with higher income have higher chances of receiving inheritances and gifts while also receiving larger transfers in absolute terms. This points into the direction that these households are able to build up wealth out of both their annual income as well as substantial inheritances and inter-vivos transfers.<sup>22</sup>

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<sup>22</sup> Keep in mind that the income variable is only a proxy for life-time earnings, as it does refer to the calendar year prior to the survey year (or the 12 months preceding the survey).

**Table F | Fractional logit regressions for share of current wealth due to past intergenerational transfers (heir population)**

Fractional Logit	AT	BE	FR	W-DE	CY	GR	PT	ES
Age 21-34	-0.092 (0.265)	0.468* (0.267)	0.059 (0.105)	-0.608** (0.229)	0.216 (0.281)	-0.684** (0.338)	0.069 (0.310)	0.035 (0.216)
Age 35-44	-0.244 (0.209)	-0.059 (0.212)	-0.066 (0.072)	0.018 (0.149)	-0.133 (0.205)	-0.526** (0.274)	0.286 (0.209)	0.199* (0.133)
Age 55-64	-0.051 (0.224)	0.068 (0.201)	-0.045 (0.070)	-0.069 (0.140)	-0.042 (0.302)	0.071 (0.351)	0.140 (0.189)	-0.079 (0.102)
Age 65plus	0.256 (0.268)	0.463 (0.286)	0.502*** (0.090)	0.232 (0.211)	0.440 (0.595)	0.140 (0.463)	0.661*** (0.243)	0.173 (0.125)
1 <sup>st</sup> income quintile	0.457* (0.279)	0.271 (0.237)	0.621*** (0.079)	0.006 (0.211)	1.059*** (0.365)	0.208 (0.349)	0.545*** (0.209)	0.382*** (0.128)
2 <sup>nd</sup> income quintile	0.105 (0.237)	-0.004 (0.200)	0.342*** (0.072)	0.120 (0.192)	0.419 (0.314)	0.222 (0.289)	0.266 (0.187)	0.123 (0.133)
4 <sup>th</sup> income quintile	-0.038 (0.226)	0.083 (0.187)	-0.001 (0.068)	-0.265** (0.152)	0.211 (0.260)	-0.184 (0.302)	-0.280 (0.208)	-0.019 (0.126)
5 <sup>th</sup> income quintile	-0.295 (0.214)	-0.174 (0.196)	-0.158*** (0.062)	-0.670*** (0.136)	-0.393* (0.275)	-0.147 (0.306)	-0.277 (0.195)	-0.349*** (0.114)
Education primary	0.162 (0.225)	0.031 (0.159)	0.138*** (0.051)	0.026 (0.202)	-0.084 (0.239)	0.326 (0.241)	-0.275 (0.195)	-0.116 (0.104)
Education tertiary	0.159 (0.214)	-0.103 (0.134)	0.156*** (0.049)	-0.177 (0.096)	0.110 (0.191)	0.055 (0.280)	-0.310 (0.255)	-0.137 (0.102)
Work status self-employed	-0.176 (0.209)	-0.401 (0.250)	-0.477*** (0.060)	-0.079 (0.157)	-0.275 (0.254)	-0.727** (0.280)	-0.274 (0.189)	0.186* (0.109)
Work status unemployed/other	-0.190 (0.242)	0.023 (0.222)	0.196* (0.097)	-0.025 (0.159)	0.123 (0.313)	-0.510 (0.296)	-0.367* (0.216)	0.099 (0.111)
Work status retired	0.029 (0.228)	-0.221 (0.239)	-0.073 (0.076)	-0.247 (0.189)	-0.074 (0.584)	-0.040 (0.407)	0.225 (0.211)	0.075 (0.121)
Marital status single	0.005 (0.210)	0.448** (0.206)	0.188** (0.073)	0.291 (0.193)	-0.075 (0.629)	0.728* (0.344)	0.466* (0.257)	0.435*** (0.124)
Marital status widowed	0.080 (0.370)	0.729*** (0.235)	0.118 (0.089)	0.288 (0.242)	-0.449 (0.583)	0.726* (0.408)	-0.075 (0.250)	0.216* (0.133)
Marital status divorced	0.054 (0.260)	0.609*** (0.221)	0.116 (0.083)	0.420** (0.181)	0.726 (0.440)	0.616 (0.437)	0.210 (0.292)	0.114 (0.152)
Gender man	-0.178 (0.143)	-0.095 (0.119)	-0.108** (0.046)	-0.044 (0.100)	-0.331 (0.181)	-0.478** (0.217)	-0.421** (0.179)	-0.170** (0.081)
HH size 1	-0.027 (0.242)	0.035 (0.206)	0.126* (0.073)	-0.028 (0.186)	-0.206 (0.565)	-0.696** (0.372)	0.253 (0.221)	-0.030 (0.127)
HH size 3	0.145 (0.228)	0.211 (0.192)	-0.058 (0.067)	0.012 (0.136)	-0.216 (0.291)	0.054 (0.299)	0.259* (0.165)	0.069 (0.096)
HH size 4	0.000 (0.333)	0.188 (0.227)	-0.006 (0.074)	-0.212 (0.154)	0.116 (0.287)	0.041 (0.292)	0.355* (0.201)	0.031 (0.110)
HH size 5plus	0.103 (0.339)	-0.125 (0.290)	0.035 (0.095)	0.034 (0.220)	0.009 (0.336)	0.164 (0.391)	0.882*** (0.285)	0.229 (0.162)
Constant	0.688** (0.279)	-0.703*** (0.233)	-0.394*** (0.088)	0.747*** (0.181)	-0.003 (0.391)	2.363*** (0.391)	0.260 (0.332)	-0.204 (0.161)

Reference groups: age 45-54, education secondary, work status employed, marital status married, gender women, 3<sup>rd</sup> income quintile, HH size 2

Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Own computations from the HFCS survey wave 1 (2013). All 5 imputates are used, standard errors bootstrapped..

## 5. Conclusion

We conduct a detailed investigation of the distribution of wealth transfers in eight countries in the Euro-area (Austria, Belgium, France, West-Germany, Cyprus, Spain, Greece, and Portugal). We find in the first part of our empirical analysis that, in absolute terms, the percentage of households with a transfer as well as the mean present value of those transfers is increasing along the distribution of net wealth. Using a series of country-specific regressions, we find that high income and high education levels strongly correlate with both the probability of receiving a transfer and the value of those transfers. Overall we observe quite similar patterns in all European countries included our sample. For instance, we find that self-employed households tend to have a higher incidence, compared with employees, to have received a transfer, and those transfers tend to be higher than those of employees. Overall, the ties between education, income and age for both incidence and value of wealth transfers are strong across all countries we analyzed (thereby confirming our first hypothesis). Regarding the second hypothesis, we do find that the levels are slightly higher for core European countries, but we do not find that mean present values are significantly lower for the Mediterranean. As for the tax regimes in hypothesis 3, we find that the present values indeed are highest for Cyprus among the Mediterranean countries. However, they are significantly lower in Portugal than in Spain in spite of the much more steep taxation in Spain, this is probably because the overall wealth levels are much lower in Portugal for historical reasons. Belgium does not have the lowest wealth transfer values, the difference to France is not significant.

Expressing the mean present value of transfers in relative terms, as a percent of current net worth, never exceeds 50% and shares are lower in the Mediterranean countries (Greece deviates from the other Mediterranean countries, as does Belgium compared to the rest of core Europe), which confirms our fourth and fifth hypotheses. Switching the approach to an analysis in relative terms reverses the findings we make compared to the absolute present value in the first part of this paper. Then, the importance of intergenerational transfers does not increase with the level of wealth. Additionally, in some countries for higher income quintiles the percentage of current net worth due to past intergenerational transfers also tends to be lower than for less affluent households. The results also show that the share of current wealth due to past intergenerational transfers for self-employed households is smaller than for employees.

We observe the pattern that households from higher income quintiles are able to accumulate more wealth through an increased capacity to save on their own. In addition, once high income households

report an inheritance or inter vivos transfer, the values are substantially higher than for low income households, thereby increasing the gap between rich and poor households. If policy aims to reduce wealth inequality and, more generally, economic inequality, it must therefore revisit the strong link between high incomes and high expected values of wealth transfers.

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## Appendix A

Table A1. Taxation of inheritances and gifts: a European comparison

Country	Reference period: 2000-2010	Tax depending on level of relation (1)	Max. tax rate threshold	Max. tax allowance (renewed)	Exemptions/special regulations	
<b>(1) No or low inheritance &amp; gift tax</b>						
Cyprus	since 2000	<b>No inheritance or gift tax, but land transfer tax for gifts</b>				business transfers within families
		Spouses & Children	3-8%	€170,860 (since 2008, € 100.000 before)	---	
Austria	since 2008	<b>No inheritance or gift tax, but land transfer tax</b>				business transfers
		Spouses & Children	2%	---	€1,100	
	Other Persons	2-3.5%	---	€1,100		
	before 2008	<b>Moderate inheritance &amp; gift tax with low allowances</b>				business transfers
Spouses & Children	2-15%	€4,380,000	€2,200 (10 yrs.)			
Other Persons	4-60%	---	€110/440/2,200 (10 yrs.)			
Portugal	since 2004	<b>Stamp duty</b>				business transfers (tax rate 25%)
		Spouses & Children	0% inheritance 0.8% property gift	---	---	
	Other Persons	0/10% inheritance 0.8/10.8% property gift	---	---		
	before 2004	<b>Moderate inheritance &amp; gift tax with low allowances</b>				business transfers (tax rate 25%)
Spouses & Children	3-24%	€355,343	€3,641 tax free, children under age tax free (never)			
Other Persons	7-50%	---	€374, plus €1,820 if inheritance in ascending line (never)			

**(2) Moderate inheritance & gift tax rate with moderate or high allowances**

Country	Period	Category	Rate	Exemption	Threshold	Notes
Greece	since 2010	Spouses & Children	1-10%	€600,000	€400,000 if inheritance - married at least 5 years, only children under age	primary residence, shares and business transfers
		Other Persons	1-40%	€267,000	€6,000-€30,000 from this amount on taxes are due, depending on level of relation	shares and business transfers
	before 2010	Numerous changes, e.g. tax allowances (2004: €19,076 spouses & children), tax rates (2004: 5-25% and up to 60% for other persons, 2008: depending on asset: for spouses & children property max. 1%, shares max. 0.6%)				
Germany	since 2010	Spouses & Children	7-30%	€26,000,000	€500,000, €400,000 for children, (10 yrs.)	owner-occupied property, business transfers
		Other Persons	7-50%		€20,000/100,000/200,000 (10 yrs.)	business transfers
	before 2010	less exemptions, lower tax allowances, thresholds in tax brackets lower, lower tax rate for some "other persons"				

**(3) High or moderate inheritance & gift tax rate with low or moderate allowances**

Country	Period	Category	Rate	Exemption	Threshold	Notes
Spain	since 2010	Spouses & Children	7.65-34% + multiplier: 1-1.2%*	€797,555, multiplier depending on heir's wealth (max. threshold €4,020,770)	€15,956, €47.858 for children under age (3 yrs.)	business transfers, property
		Other Persons	7.65-34% + multiplier: 1.59-2.4%*		€0/7.993/15,956 (3 yrs.)	
	before 2010	hardly changes (e.g. lower allowances), <u>but</u> regional governments may deviate from national legislation since 2004, this resulted in tax exemptions of up to 99% of estate value				
France	since 2000#	Spouses & Children	5-45% (except for spouses since 2008)	€1,805,677	€156,956 (10 yrs.)	business transfers, tax reduced if three children under age
		Other Persons	5-60%	€0-1,805,677	€1,520-€156,359 (10 yrs.)	
		# only slight adjustments of the allowances and the limit for the maximum tax rates				

<b>Belgium</b>	<b>since 2010</b>	<b>inheritance tax (regional differences)</b>				
		Spouses & Children	3-30%	€250,000-€500,000	€15,000-€25,000, €65,000-75.000 for children under age (3 yrs.)	owner-occupied property, business assets, and others depending on region
		Other Persons	3-80%	€75,000-€500,000	€620-1,250/€15,000-25,000 (3 yrs.)	
	<b>since 2010</b>	<b>gift tax (regional differences)</b>				
		Spouses & Children	1-30% (max. 7.7% for movable assets)	€500,000	---	owner-occupied property, business assets, and others depending on region
		Other Persons	1-80% (max. 7.7% for movable assets)	€75,000-€500,000	---	
<b>before 2010</b>	Regional legislation of gift tax possible since 2001, inheritance tax since 2002					

(1) In some countries spouses and partners have the same legal rights. This is not documented here.

Sources: Legal texts from individual countries, Mennel & Förster (2014), Schupp & Szydlík (2004) und EY (2014).

## Appendix B

### Robustness checks

In table E we assume that the time invariant interest rate on the investment of all wealth transfers is 3% for all households. In order to check the impact of this assumption on the relative importance of wealth transfers for the net worth along the distribution, we conduct a series of robustness checks.

#### Long-term interest rates on government bonds

In section 4 we argue that a secure investment would be in line with a rate of return of three percent ( $r = 3\%$ ), as this is a capitalization rate quite common in the literature (for example, Wolff & Gittleman 2014). Alternatively, one might assume that the most secure investment a citizen may choose is a long-term investment in government bonds (cf. Bönke et al., forthcoming). The nominal rate of return then is the (yearly average) nominal yield of such an investment. The data does not allow us to compute the resulting capitalized values of inheritances and gifts, as the time series are not entirely available for any of the Mediterranean countries. However, they are available for Belgium, France and Germany from the 1950s onward. In table B1 the results are shown for a capitalization of past inheritances and gifts using the nominal yields of long-term government bonds.<sup>23</sup>

This change of method would have almost no effect on the overall inheritances and gifts as a percent of net worth, the maximum deviation would be in France with +0.9%. For the individual wealth classes all changes are below one percent, no patterns are visible. For household income this change would affect lower quintiles slightly more, but again the changes are negligible. The shares are somewhat higher for the older cohorts, probably due to higher interest rates on government bonds in the 1970s and 1980s as compared to a real interest rate of 3%. The variation for both the conditional mean and median value of transfers received is below €5,000. In summary, applying government bonds instead of a flat real interest rate hardly affects the outcomes for the countries where time series are available.

#### Real interest rate $r = 1\%$ versus $r = 5\%$

The second robustness check assesses the impact of a flat low versus a flat high interest rate. We compare the different outcomes of  $r = 1\%$  and  $r = 5\%$  on the wealth transfers received as a percent of net worth and conditional mean and median present values (table B2). Most importantly, the general patterns we observe along the distribution of wealth are largely independent of the chosen real interest rate, even though the higher wealth classes are affected more by a higher rate of return. For the income

<sup>23</sup> Extracted from the OECD database on Long-term interest rates, which refer to government bonds maturing in ten years. Available online: <https://data.oecd.org/interest/long-term-interest-rates.htm> (Feb 10, 2016).

quintiles there are no changes of the patterns visible either. The overall increase of share is the lowest in Portugal (3.9 percentage points) and highest in Austria (9.5 percentage points). However, in most countries the increase is spread almost equally among the income quintiles. Only in Belgium the lowest quintile seems to be affected slightly more, in West Germany and Cyprus the middle income classes are experiencing a slightly sharper surge. The conditional mean values are varying considerably between low and high interest rates: in Cyprus the mean is up by about €121,000, in Greece and Portugal it is affected the least (around +€25,000). For the remaining country the difference varies between €47,000 and €71,000.

### **Wealth related interest rates**

However, assuming that the interest rate is the same no matter the position along the distribution of wealth may not seem reasonable. It is more likely that households with a higher level of wealth are better informed about financial markets and investment opportunities. In addition they hold enough money to be able to divide it into different investments; consequently they might take higher risks and realize higher rates of returns than the middle class or households from the bottom half of households. Hence, in this last step we assume that the real interest rate correlates with the net wealth position: The wealth class below €20,000 includes a significant number of net borrower and zero wealth observations and is excluded from the analysis. The next class realizes an interest rate of 3%, which then is increasing with every wealth class by 1%, thus leading to an interest rate of 7% for households with net wealth higher than €1 million. We then compare the results for the assumption that all realize the same real interest rate (3%) to the wealth related interest rate in table B3.

As expected, the changes in percentage points are highest for the highest wealth class. In comparison to a flat real interest rate the changes vary between 2.8 percentage points in Portugal and 10.8 in Greece. In the core countries Germany, Austria and Belgium and in Cyprus the second wealthiest class stays ahead of the top class after adjusting to a wealth related interest rate, only in France we observe a change, albeit the difference is not statistically significant. As for the Mediterranean countries, compared to a real annual interest rate of 3% we do not observe any considerable structural differences. The conclusion that there is relatively small variation in the importance of inheritances and gifts for net wealth between the wealth classes is still viable. We conclude that this observation is not the result of an arbitrarily chosen interest rate.

**Table B1 | Present value of wealth transfers received as a percent of net worth, capitalized using country-specific yields of long-term government bonds**

	Belgium		France		West Germany	
	mean	(std. Err.)	mean	(std. err.)	mean	(std. err.)
<b>All households</b>	14.7	(1.0)	24.1	(0.8)	31.9	(2.7)
<b>Cond. mean present value in €1000</b>	158,412	(10,140)	142,615	(4,205)	196,039	(13,096)
<b>Cond. median present value in €1000</b>	79,177		46,665		106,981	
<b>A. Wealth levels</b>						
Under €20,000	-		-		-	
€20,000 - €99,999	16.3	(3.4)	21.3	(1.7)	17.5	(2.5)
€100,000 - €249,999	15.5	(2.3)	19.2	(0.9)	35.0	(2.8)
€250,000 - €499,999	15.3	(1.7)	23.9	(1.1)	39.0	(2.7)
€500,000 - €999,999	16.4	(2.3)	26.4	(1.6)	39.3	(4.5)
€1,000,000 or over	12.6	(2.0)	25.8	(2.2)	23.5	(4.9)
<b>B. Income quintiles</b>						
1 <sup>st</sup> quintile	19.3	(4.0)	27.9	(2.3)	39.9	(9.5)
2 <sup>nd</sup> quintile	15.7	(2.5)	28.0	(2.2)	36.6	(5.6)
3 <sup>rd</sup> quintile	12.8	(2.1)	23.8	(1.9)	40.1	(4.5)
4 <sup>th</sup> quintile	15.9	(2.3)	22.1	(1.5)	38.0	(5.0)
5 <sup>th</sup> quintile	13.4	(1.8)	23.6	(1.3)	26.0	(3.7)
<b>C. Age classes</b>						
21-35	19.3	(4.0)	27.9	(2.3)	39.9	(9.5)
35-44	15.7	(2.5)	28.0	(2.2)	36.6	(5.6)
45-54	12.8	(2.1)	23.8	(1.9)	40.1	(4.5)
55-64	15.9	(2.3)	22.1	(1.5)	38.0	(5.0)
65-74	13.4	(1.8)	23.6	(1.3)	26.0	(3.7)
75 and older	19.3	(4.0)	27.9	(2.3)	39.9	(9.5)

Source: own computations from the HFCS survey wave 1 (2013). Standard errors are shown in parentheses. All 5 imputates are used, standard errors bootstrapped.

<sup>3</sup>The figures show the present value of all wealth transfers as of the survey year which were received up to the time of the survey and accumulated at a nominal interest rate of long-term government bonds as a ratio to the respective net worth in the overall population or subpopulations.

**Table B2 | Present value of wealth transfers received as a percent of net worth, real interest rate = 1 versus real interest rate = 5**

	I. Core European countries						II. Mediterranean countries									
	Austria		Belgium		France		West Germany		Cyprus		Greece		Portugal		Spain	
	r = 1%	r = 5%	r = 1%	r = 5%	r = 1%	r = 5%	r = 1%	r = 5%	r = 1%	r = 5%	r = 1%	r = 5%	r = 1%	r = 5%	r = 1%	r = 5%
<b>All households</b>	25.3	34.8	11.7	17.2	19.2	27.2	26.3	35.8	10.2	15.9	28.5	33.7	12.7	16.6	14.5	21.4
<b>Cond. mean present value in €1000</b>	188	259	125	185	114	161	162	220	218	339	138	164	73	95	141	207
<b>Cond. median present value in €1000</b>	94	130	58	94	37	56	89	125	114	199	104	119	31	42	60	97
<b>A. Wealth levels</b>																
Under €20,000	-		-		-		-		-		-		-		-	
€20,000 - €99,999	23.6	27.6	15.5	17.5	18.6	23.0	15.2	19.5	12.0	15.3	33.4	35.0	16.8	19.6	14.3	17.6
€100,000 - €249,999	28.2	34.1	13.3	17.0	15.8	21.5	31.0	38.0	20.2	25.8	33.0	36.4	15.8	20.0	11.4	15.9
€250,000 - €499,999	31.0	39.6	12.3	17.4	19.0	26.8	32.8	43.5	16.8	23.7	23.7	30.1	9.8	14.0	13.1	18.5
€500,000 - €999,999	38.1	50.7	12.6	19.2	21.4	29.9	33.4	42.8	11.1	18.7	23.6	30.4	9.6	14.0	16.1	23.8
€1,000,000 or over	17.9	28.4	9.5	15.5	19.9	29.6	17.5	27.9	8.0	13.0	28.7	41.8	10.6	14.3	16.8	26.5
<b>B. Income quintiles</b>																
1 <sup>st</sup> Quintile	35.9	46.6	14.6	22.8	22.5	30.8	36.0	41.6	9.9	15.4	34.1	38.1	16.6	22.1	18.1	26.1
2 <sup>nd</sup> Quintile	25.9	34.2	11.1	18.2	22.4	31.1	30.9	40.9	11.1	18.4	37.5	42.3	18.7	24.3	17.7	23.8
3 <sup>rd</sup> Quintile	28.8	37.4	9.7	15.1	19.5	26.4	33.6	43.8	15.5	23.8	31.2	35.7	13.1	17.3	12.6	19.4
4 <sup>th</sup> Quintile	25.6	34.0	13.3	18.3	17.5	25.1	32.0	42.1	15.8	23.7	28.0	32.0	10.9	13.9	15.1	21.0
5 <sup>th</sup> Quintile	22.9	33.4	11.2	15.7	18.7	26.9	20.7	30.0	6.4	10.2	22.5	29.3	11.1	14.5	13.2	20.5

Source: own computations from the HFCS survey wave 1 (2013). All 5 imputates are used, standard errors bootstrapped.

<sup>a</sup>The figures show the present value of all wealth transfers as of the survey year which were received up to the time of the survey and accumulated at a real interest rate either  $r = 1\%$  or  $r = 5\%$ .

**Table B3 | Present value of wealth transfers received as a percent of net worth, real interest rate = 3 versus wealth related interest rates**

	Austria	Belgium	France	West Germany	Cyprus	Greece	Portugal	Spain
<b>Wealth levels</b>								
<b>A. real interest rate = 3%</b>								
Under €20,000	-	-	-	-	-	-	-	-
€20,000 - €99,999	25.8	16.6	21.0	17.5	14.7	34.5	18.4	16.3
€100,000 - €249,999	31.6	15.5	18.8	34.8	23.4	35.1	18.2	13.7
€250,000 - €499,999	36.1	14.8	23.1	38.5	20.4	27.2	11.8	15.9
€500,000 - €999,999	45.9	16.0	25.6	39.2	14.9	27.3	12.1	20.1
€1,000,000 or over	23.9	12.2	24.5	22.6	10.0	34.9	12.8	21.4
<b>B. wealth related interest rate</b>								
Under €20,000	-	-	-	-	-	-	-	-
€20,000 - €99,999	25.8	16.6	21.0	17.5	14.7	34.5	18.4	16.3
€100,000 - €249,999	32.9	16.3	20.2	36.6	24.7	35.8	19.2	14.8
€250,000 - €499,999	39.6	17.4	26.8	43.5	23.7	30.1	14.0	18.5
€500,000 - €999,999	52.6	20.8	31.9	44.3	20.1	31.8	14.7	25.4
€1,000,000 or over	32.7	18.9	34.3	31.7	16.7	45.6	15.5	30.6

Source: own computations from the HFCS survey wave 1 (2013). All 5 implicates are used, standard errors bootstrapped.

<sup>3</sup>The figures show the present value of all wealth transfers as of the survey year which were received up to the time of the survey and accumulated at a real interest rate either  $r = 3\%$  or wealth related, i.e. from €100,000 onwards the interest rate is increasing in steps of one, yielding an interest rate of  $r = 7\%$  for the highest wealth level.

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