



Wealth inequalities across generations

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ABSTRACT

This study considers age stratification in terms of the distribution of wealth across age groups using harmonized micro-level data from the Luxembourg Wealth Study Database. The analysis is applied to the latest cross-sectional data for seven countries representative of different welfare regimes and different family models: the United States, Germany, Italy, Sweden, Finland, the United Kingdom, and Japan. Wealth increases with age, irrespectively of the welfare state, but its progression varies in important ways. That is, whereas the older age groups have command of a disproportionate share the economic resources compared to young adults, the gap between the old and the young differs in substantially across countries. We discuss the possible implications of wealth accumulation across different age strata for the younger generations and the way it may affect their transition to adulthood.

KEYWORDS

Age stratification; Inter-generational transfers; Luxembourg Wealth Study; Transition to adulthood.

EDITORIAL NOTE

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WEALTH INEQUALITIES ACROSS GENERATIONS

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1 INTRODUCTION

Since the monumental review ‘Aging and Society’ was first published by Riley, Johnson, and Foner (1972) a half century ago, the broad outlines of a theory of age stratification have been widely accepted in social science. Riley and her colleagues observed that age and aging organize access to social resources much like what occurs within socio-economic strata. The idea that age groups that have greater or lesser access to resources and power is more widely acknowledged than actually investigated empirically. Indeed the predominant approach in studies of income inequality is to treat age and aging as a confounding factor in social inequality because it has long been established that in most, if not all, modern societies, wealth increases with age (Modigliani 1986). Such an approach, while legitimate, tends to ignore the consequences of concentrations of wealth among the middle and older segments of the population and difficulties of acquiring income and wealth among the young.

Nonetheless, there are some important exceptions. The notion of age stratification, for example, was central to the stream of research that flowed from Preston’s (1984) PAA Presidential Address on the growing political power of the elderly in contrast to the limited power of the young and children in particular. This topic remains an urgent concern to governments trying the balance support of the elderly while providing sufficient investment in the young. Yet, there is a paucity of comparative research on how economic resources are distributed by age strata within and across societies owing partly to the absence of comparable data.

We exploit a source of data, the Luxembourg Wealth Survey (LWS), which allows us to examine how wealth is related to age at the individual level and how it is concentrated across age groups in different societies. We provide first a description of how wealth is concentrated across age groups in different societies, and we do so by looking at net worth and its components, homeownership rate, and proportion of households with negative or zero net worth. In a second step, we examine the timing of wealth accumulation across different societies. To accomplish this goal, we estimate linear regression models separately for each country, where household wealth is modelled as a function of age. We are able to compare the US with Japan and several European countries, the UK, Germany, Sweden, Finland, and Italy. This is an initial

step in a broader program of research that will examine how macro-level distributions of wealth by age group might affect the timing of life course transitions such as educational completion, home leaving, and family formation. How and when wealth is accumulated and transferred from one generation to the next has been extensively explored by economists and sociologists in studies of intergenerational transfers (Albertini and Koli 2012). However, there is virtually no research on how accumulations of wealth in different age strata affect the timing of transitions in early adulthood because the distribution of wealth by age groups in different societies is not known. The objective of this paper is to examine this basic question. Our analysis examines similarities and differences across societies in the pattern of age and wealth accumulation.

2 BACKGROUND

Wealth, typically measured by net worth, is a measure of economic wellbeing given by the sum of all financial and non-financial assets net of total debts. Wealth is accumulated through savings originated by earnings exceeding consumption-related expenses, and intergenerational transfers, mainly in the form of inheritance, bequests and inter-vivos transfers such as gifts. These two sources are found to be equally important for the accumulation of wealth across a variety of different countries (Semyonov and Lewin-Epstein 2013).

Wealth and income are only modestly correlated (Keister and Moller 2000) and wealth inequalities might be very different from income inequalities when comparing nations (Jantti, Sierminski, and Smeeding 2008). For example, among the countries considered in this study, Sweden presents the most unequal wealth distribution and the most equal income distribution, while the opposite is found for Italy, with the highest income inequality and the lowest wealth inequality (Fredriksen 2012). The US instead reveals a pattern of high inequality for both wealth and income.¹

According to the life-cycle hypothesis (Modigliani and Brumberg 1954; Modigliani 1986), wealth increases with age because people save for retirement during

¹ For an extensive review of differences and similarities in wealth across the countries used in our study see US National Research Council (2001) and Fredriksen (2012) for more recent findings.

their working life, while they de-cumulate savings for consumption during retirement. The relationship between age and wealth is therefore predicted to be hump-shaped, with a peak around retirement age (Ando and Modigliani 1963). Empirical applications have confirmed the existence of a hump-shaped relation between age and wealth, but have also shown that in many societies and time periods, retirement age did not coincide with the predicted increased consumption and the consequent drop in wealth for retirees (Mirer 1979; Danziger et al. 1982; Klevmarken 2004; Fredriksen 2012). Bequests, intergenerational solidarity, economic uncertainty and increasing life expectancy are all accepted explanations for the lack of wealth de-cumulation at old ages (Danziger et al. 1982). A review on wealth accumulation and distribution can be found in Keister and Moller (2000).

The distribution of wealth across age groups has important implications for intergenerational dependency. In recent years there has been increasing interest in intergenerational relationships, and in particular, in the patterns of transfers taking place across generations (Aassve et al. 2012; Albertini and Kholi 2012; Attias-Donfut, Ogg, and Wolff 2005; Hagestad and Herlofson 2007; Mulder and Smith 2013). A consistent finding in this literature is that across all Western societies there are net downward transfers from the older generation to the younger one, implying a certain dependency of youth on their parents for their own wealth accumulation. One of the most important forms of transfer from parents is the monetary help with the first house acquisition in the form of money towards a deposit, contribution to mortgage, or gift of a house (Holdsworth 2004). Parental help on first-time home-ownership has been found to be particularly important in Southern Europe and Germany, while in other European countries the first house acquisition is achieved through mortgages, which young individuals and couples can obtain through reasonably well functioning credit markets (Angelini, Laferrère, and Weber 2012; Holdsworth 2004; Guiso and Jappelli 2002).

However, intergenerational dependency is changing, and today young people rely on their parents more heavily than in the past. With mass education, young people enter the labour market later than they used to, hence achieve economic independence from parents later (Sironi and Furstenberg 2013). Cohort studies have shown that since the 1970s younger generations have gained more wealth compared to previous

generations at the same age (Jappelli 1999; Angelini, Laferrère, and Weber 2012), but this trend has reverted in the last three decades, to the point that young people today hold less wealth (Fry, D’Vera Cohn, and Taylor 2011), are more likely to experience financial difficulties (Sironi and Furstenberg 2013), and are more exposed to risk of poverty (Sironi 2012) as compared to young people in the past. Whereas young people have become significantly poorer in recent decades, the elderly live longer and wealthier than they used to. A report published by the PEW Research Center, focussing on the US, documented an unprecedented increase in intergenerational inequality measured in terms of wealth and economic wellbeing (Fry et al. 2011). Fry et al. (2011) show that between the 1960s to the 2010s, the gap in poverty between the young and the old has climbed dramatically. In particular, the proportion of young households (i.e. headed by a young adult aged less than 35) below the poverty line has passed from 12% in 1967 to 22% in 2010. On the contrary, poverty rates decreased from 33% to 11% for households headed by a 65+ over the same period.

A key feature of the change in wealth distributions across age groups comes from trends in homeownership and property prices. Over the last two decades, property prices have increased dramatically in a range of European countries, with the implication that wealth has increased disproportionately for those being home owners. Studies from the UK shows for instance that homeownership increased dramatically in the 1980s and that house prices, apart from some short periods, rose steadily until the onset of the recent financial crisis (Appleyard and Rowlingson 2010). These developments have had several important implications for young people. Most importantly, entering the housing market has become increasingly difficult, especially for those with low incomes, but it has also contributed to a widening of housing wealth and the gap between ‘housing haves’ and the ‘housing have-nots’ has certainly increased. Similar patterns are found in the US. Over the last decades the rate of homeownership increased sharply, but importantly the rate of mortgage financed housing also increased. With increasing property prices these trends helped in increasing wealth also among younger householders (though not relatively with respect to older households). However, with the onset of the financial crisis, and the massive onset of mortgage defaults, young householders suffered disproportionately more with respect to the older householders whose mortgage debt was in any case much lower (Emmons and Noeth 2013). Those trends are also reflected in the Survey on Household

Income and Wealth run by the Bank of Italy. It shows that wealth has been increasing over the last two decades for all age groups, but wealth among the youngest age group declined in recent years, thereby widening the gap between the young and the older generation (Mori 2012).

3 DATA AND METHODS

The Luxembourg Wealth Study Database (LWS) provides micro-level data on household wealth together with household and personal-level information for a selection of OECD countries. A detailed description of the LWS database can be found in Niskanen (2007) and Sierminska, Brandolini, and Smeeding (2006a; 2006b).

The LWS was not expressively designed to compare countries instead it harmonizes existing national datasets. It follows that the reference period, the unit of collection, and the recoded measures of wealth are not all the same across the samples. For this reason, we restrict our attention to the samples which show a high degree of comparability for what concerns the measurement of the various aspects of wealth. Our analysis on LWS is applied to the latest cross-sectional data for seven countries: the United States, Germany, Italy, Sweden, Finland, the United Kingdom, and Japan. The survey year varies between 1998 (Finland) to 2006 (the US and Germany). Original sample sizes vary from about 4,000 households (Finland) to about 58,000 (Germany).² The lowest age of householders is 15 in the UK, 16 in Finland, 17 in Germany and Sweden, 18 in Italy and the US, and 19 in Japan. The upper age is 69 in Japan, while it is 95 and above in all other countries (95 in the US, 97 in Italy, 98 in Finland and Germany, 99 in the UK, and 101 in Sweden).

Wealth is measured at the household level by the aggregate variable net worth, constructed as the sum of all financial and non-financial assets net of total debts. In detail, total financial assets encompass deposit accounts and risky assets (bonds, stocks and funds), while non-financial assets encompass principal residence and investments in real estate. Total debt encompasses home secured debt (principal residence

² The data for the US and Germany are stored in the LWS as five successive replicates of each record due to multiple imputation procedure; thus, the sample size in the dataset is five times the actual number of respondents. We control for the bias induce by this measurement by using weights. In regression models, standard errors are multiplied by the square root of five.

mortgage, other property mortgage and other home secured debt) and non-housing debt (vehicle loans, total investment debt, educational loans, other loans from investment and informal debt, where available). Net worth in the German sample is not entirely comparable to the other countries, because here the survey asks about individual rather than household wealth. Moreover, assets and debt are recorded only for those with more than 2,500 Euros (Jantti et al. 2008).

The dependent variable is a transformation of the original survey variable measuring household net worth. The transformation is needed because the distribution of wealth is in general right-skewed, and it contains negative and zero values. Retaining negative and zero values of net worth is particularly important in this study because it is assumed that young householders will be more likely to hold negative or null amounts of wealth if compared to householders in other age groups. Following Semyonov and Lewin-Epstein (2013), we apply a transformation by shifting the distribution of wealth to the right by adding a constant which is equal to the absolute value of the minimum value of net worth plus 1. Finally, we employ a log transformation so that the dependent variable has a log-normal distribution (Jappelli 1999), whose argument is non-negative by construction (Jappelli and Pistaferri 2000; Mirer et al. 1979). The resulting transformation applied to household net worth (W) takes the following form:

$$f(W) = \log(W + \min W + 1)$$

We estimate nested linear regression models where age is first modelled with a linear term, then with a second-order polynomial (i.e. a linear and a quadratic term); up to a fourth-order age polynomial, for each country separately. The Akaike Information Criterion (AIC) is used to select the best model specification among the four options. From the estimation we compute predictions of wealth by age, which in turn informs us about how wealth is distributed across ages. In other words, we are able to measure the age gap in wealth and compare these gaps across different societies. Finally, using country-specific quintiles of net worth, we are able to predict the mean age when individuals leave the respective quintiles, i.e. at which age householders progress on the wealth distribution.

Observations with missing information on age or net worth were excluded from our sample. In order to ease comparisons, all monetary values were converted into 2005 US\$ using a PPP conversion factor for private consumption and a deflator for GDP provided by the World Bank. When analysing the distribution of wealth, we further exclude from the sample outliers, identified as households whose net worth lies outside 1.5 times of the inter-quartile range of the country-specific net worth.

4 RESULTS

4.1 WEALTH ACROSS AGES AND COUNTRIES

The countries in this study are characterized by dissimilar age distributions of householders. The mean age of the householder varies between 49 in Finland to 55 in Italy (Table 1). About one fifth of the households in the two Scandinavian countries are headed by young householders under 35 years of age (24% in both Sweden and Finland, 26% in Japan), about one fourth in the US and the UK (22% and 18%, respectively), and 15% in Germany. Italy shows the lowest proportion, with only 10% of households headed by a young householder.

Among young adults, those below age 25 are very rarely householders, though we observe country differences also here. In Italy less than 1% of the households are headed by householders under 25 years of age. In Germany and the UK the proportion is 3% and 4%, respectively, while in Sweden, Finland and Japan it is 7%. The age distribution of householders mirrors cross-country differences in the age at leaving the parental home and starting an independent household. Research has shown that in the South of Europe and in Japan the median age of leaving home is above 30, implying a common pattern of co-residence of young adults and parents, whereas in Scandinavian and in many Anglo-Saxon countries, the median age of leaving home is about 10 years lower (Aassve et al. 2002; Billari et al. 2001; Raymo and Ono 2007). For Japan, individuals older than 69 are excluded from the sample by design, and this explains why the mean age of householders is 45 in the LWS sample, and the proportion of households headed by a young householder equals to 26%, i.e. respectively much lower and much higher than one would expect for a country with a “latest-late” transition to adulthood (Billari et al. 2002).

	US	UK	Germany	Sweden	Finland	Italy	Japan
Mean Age of Householders	50	53	54	50	49	55	45*
% Householders under 25	5.5	4.2	3.1	6.9	7.5	0.8	6.3
% Householders by age group (column percentages):							
<35	22.1	19.8	15.8	24.5	24.5	10.5	27.3
35-44	19.8	20.2	20.9	18.0	20.2	22.9	22.5
45-54	20.7	16.8	17.6	17.3	20.8	18.1	22.8
55-64	16.6	13.4	14.6	15.9	13.4	15.8	20.2
65+	20.8	29.8	31.1	24.3	21.1	32.7	7.2
N.	18,101	3,765	53,543	16,604	3,679	7,580	2,648

Table 1: Mean age and age distribution of householders (column percentages)

Notes: National samples have different lower and higher ages. In particular, the lower age is 16 for Finland and the UK; it is 17 for Germany and Sweden, 18 for Italy and US while it is 19 for Japan.

*The Japanese sample comprises individuals aged 19 to 69, hence the age group “65+” refers to individuals aged 65-69 in this case.

Table 2 shows homeownership rates by age group and country. According to LWS samples, between 62% and 68% of households are owned in five out of seven countries, while the rate of home ownership is much lower in Germany and Sweden (38%).³ Young householders have a low homeownership rate if compared to older householders in all countries. Particularly noteworthy is the case of Finland where only 29% of households headed by a young adult are owned, compared to 65% of households headed by a householder aged 35-44 years, and 70% or more by a householder above 55 years. In line with the national trend, home ownership for young individuals is rare among German and Swedish householders (15% and 22%, respectively). In the UK instead, the majority of young householders are homeowners (52%), and homeownership is quite widespread also among young households in the US, Japan and Italy. In the case of Italy, as much as 16% of the households headed by young householders are occupied in usufruct, meaning that the householders are not

³ In the case of Sweden, some statistics present the homeownership rate inclusive of the category “tenant-owned dwellings”, which we are not able to disentangle within the LWS broad category of “tenants”.

effectively owner until the death of the owner (who is usually a parent), but in the meantime is not renting either.

	US	UK	Germany	Sweden	Finland	Italy	Japan
All ages	68.5	70.4	40.8	36.6	62.9	45.7	76.0
<35	40.6	55.2	15.0	21.7	29.6	58.4	58.9
35-44	66.1	77.5	38.1	40.8	65.1	67.3	71.6
45-54	77.2	81.2	44.6	43.6	76.2	77.8	83.8
55-64	80.9	78.0	52.6	48.9	81.9	72.9	87.1
65+	81.2	64.8	47.0	35.4	72.6	66.5	89.3
N.	18,101	3,743	53,543	16,604	3,679	7,580	2,640

Table 2: Homeownership rate by age of householder

Note: Home-ownership rates comprise also ownership with payment pending. The homeownership rate encompasses different categories in different countries: for Italy, the US and Germany "owned"; for Sweden: "partly owned/right of residence", "owner occupied house/co-op", "own apartment in apartment block", "owned farm"; for UK "owned outright", "owned with mortgage"; for Finland: "own house, own land", "own house in rented land", "own apartment"; for Japan: "owned detached house", "owned apartment(owned land)", "owned apartment/house(general leased land)", "owned apartment/ house(fixed term leased land)". The Japanese sample comprises individuals aged 19 to 69, hence the age group "65+" refers to individuals aged 65-69 in this case. Sample sizes for UK and Japan differ from those presented in Table 1 due to missing values.

Figure 1 shows the household mean and median net worth by age of householder and country. The most wealthy countries in terms of median net worth are Italy (120,194\$) and Japan (78,449\$), followed by the UK (57,261\$), the US (54,526\$), Finland (42,858\$), Germany (32,051\$), and Sweden (15,107\$). For all countries, mean values are higher than median values, indicating that the distribution of wealth is right-skewed.

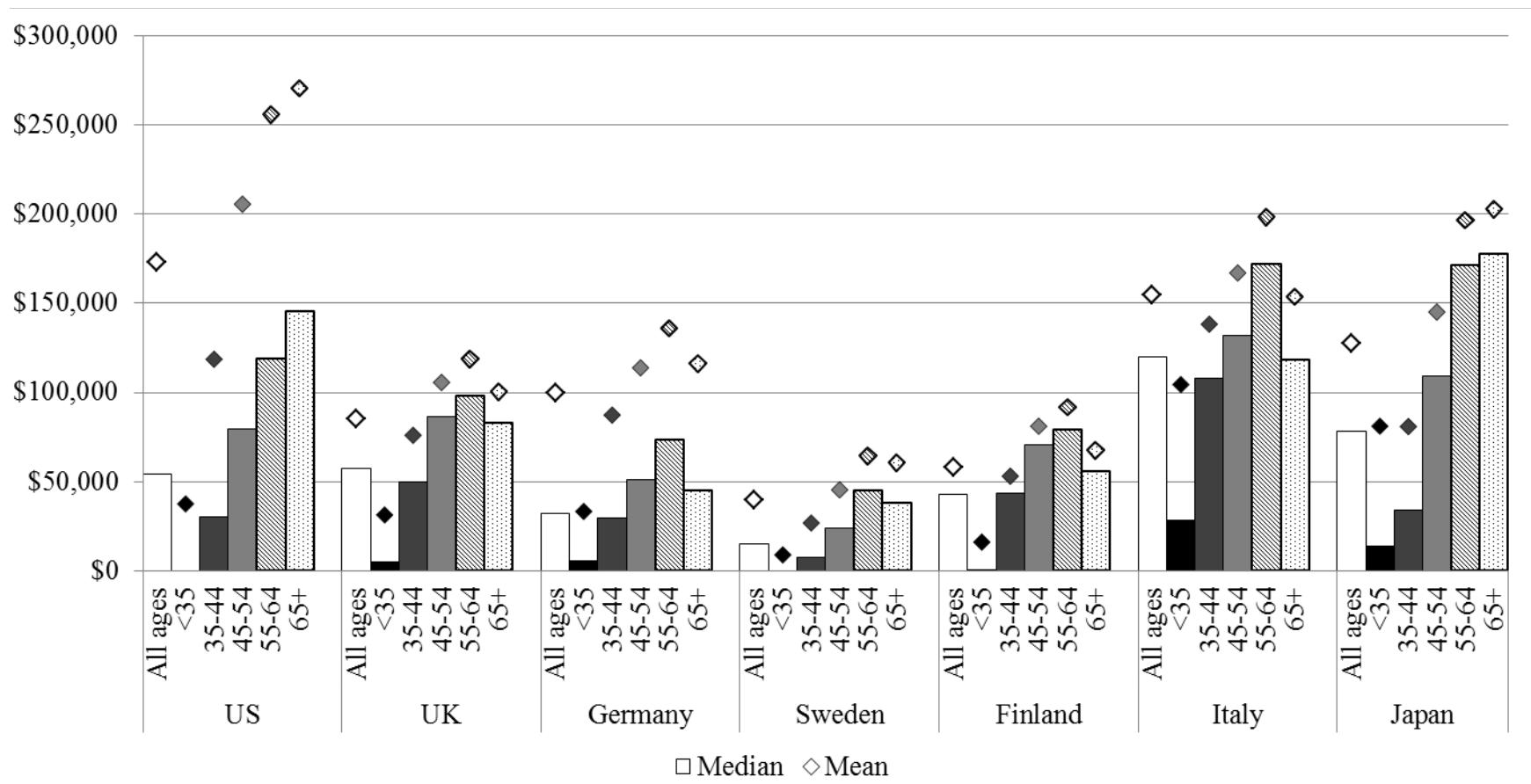


Figure 1: Mean and median net worth by age of householder, 2005 US\$

Note: In order to ease comparison across currencies and time, values are converted into 2005 US\$ using a PPP conversion factor for private consumption and a deflator for GDP provided by the World Bank. Germany is the only country where wealth is measured at the individual rather than at the household level. The Japanese sample comprises individuals aged 19 to 69, hence the age group “65+” refers to individuals aged 65-69 in this case.

As expected young people represent the least wealthy age group in all countries in our sample. Mean net worth for young people is substantially below the country average, while median net worth is zero in the US and Sweden, and it is positive but very low in Finland (686\$), the UK (4,709\$) and Germany (5,490\$). Table 3 reports the proportion of households holding negative or zero wealth by age of householder and country. In all countries, the proportion of households with negative or zero wealth decreases with age. We find that one in two young households in Sweden and the US (56% and 51%, respectively) and about one in three in Finland, the UK, Germany, and Japan (37%, 37%, 33%, and 29%, respectively) hold negative or zero wealth.

One exception stands out, Italy, where only 15% of young households have negative or zero wealth, compared to an overall national proportion of 10%. Young households in Italy, while holding less wealth than older generations, are much wealthier than peers in other countries. Young Italian householders hold, on average, about three times more net worth than young Americans, Britons, Germans, and much higher wealth than Swedes and Finns. Young households in Japan also hold more wealth than peers in other countries, but they are less wealthy than Italians; for example, 29% of young Japanese households have no wealth, while for Italians it is only 15%. The key behind this pattern lies in the rate of household headship by age. Table 1 shows, for instance, that only 10% of households in Italy are headed by a young adult below 35 years, versus more than 20% in other countries.

It is useful to compare these patterns with those reported in the earlier literature. Comparing the age-wealth profiles for Italy and the US, Brandolini et al. (2006) argue that the wealth profile in Italy is flatter compared to the US because young individuals tend to stay longer with parents. However, the age-wealth profiles are also rather flat in other countries where co-residence of multiple generations within the same household is not so common, examples being Sweden and Finland. In fact, young people who co-reside with their parents in most cases will not be identified as householders. Instead the household head will be one of the parents. Since wealth is measured at the household level, we attribute it to the household head, which in the case of parent-child co-residence, would be the father and not the young adult. LWS data shows that Italian households headed by a young adult are characterized by an average of 0.4 earners and

2.4 persons of which 0.8 are children aged 0-18 and 0.3 are aged 65+, suggesting that the 10% of young households are indeed headed by young householders who live independently from parents. This suggests that those few who have established their own household by age 35 in Italy are by any comparison very rich.

	US	UK	Germany	Sweden	Finland	Italy	Japan
All ages	24.3	19.8	23.8	33.7	17.5	9.9	21.0
<35	50.6	37.4	32.7	55.8	37.4	15.4	28.7
35-44	28.7	21.0	25.5	40.9	19.5	11.7	27.8
45-54	18.3	13.7	22.2	31.9	11.2	11.7	16.4
55-64	13.0	15.9	20.0	20.8	8.5	7.1	11.6
65+	7.3	12.5	20.7	15.7	4.4	7.3	11.5
N.	18,101	3,765	53,543	16,604	3,679	7,580	2,648

Table 3: Proportion of households with negative or zero net worth by age of householder

Figure 2 shows the decomposition of net worth in its components, i.e. total non-financial assets, total financial assets, and total debt, all in median values. In all countries, wealth is mainly constituted by non-financial assets, i.e. value of main residence and investments in real estate. For most countries financial assets, i.e. deposit accounts and risky assets (bonds, stocks, and funds), represent only a marginal component of wealth. Japan and Germany show the highest amount of financial assets, with a median value of about 13,000\$ across all age groups.

In all countries, the median total debt is zero for householders aged above 65 years. The median total debt is highest for householder aged less than 55 years in the US, the UK, and in Sweden. This means that in the three countries, the majority of householders aged up to 55 are to some degree indebted. Total debt is instead low in Germany, Japan, and Finland, while in Italy total debt is remarkably low. An important driver behind this result is that the credit market is not functioning equally well in Italy compared to other countries, with the implication that more than in any of the other countries, young Italians need help from their parents in order to purchase a property.

Past research has shown that intergenerational transfers from parents to children for the first house acquisition are widespread in Italy (Guiso and Jappelli

2002; Tomassini, Wolf and Rosina 2003). Our data does not allow us to measure vertical transfers directly. But the fact that 16% of young Italian householders are occupying in usufruct, most likely from their parents, is an indication of an important intergenerational transfer that we do not observe in other countries. It follows that the way young individuals depend on the older generations for financial support needed to accumulate wealth is by far the strongest in Italy. In Anglo-Saxon and Scandinavian countries where the level of debt is high, young people can to a greater extent rely on credit institutions (either private or public) for their investment in housing, thereby lowering the intergenerational dependency. The UK is the only country where young households have a substantial amount of non-financial assets, which mirrors the high homeownership rate among young people.

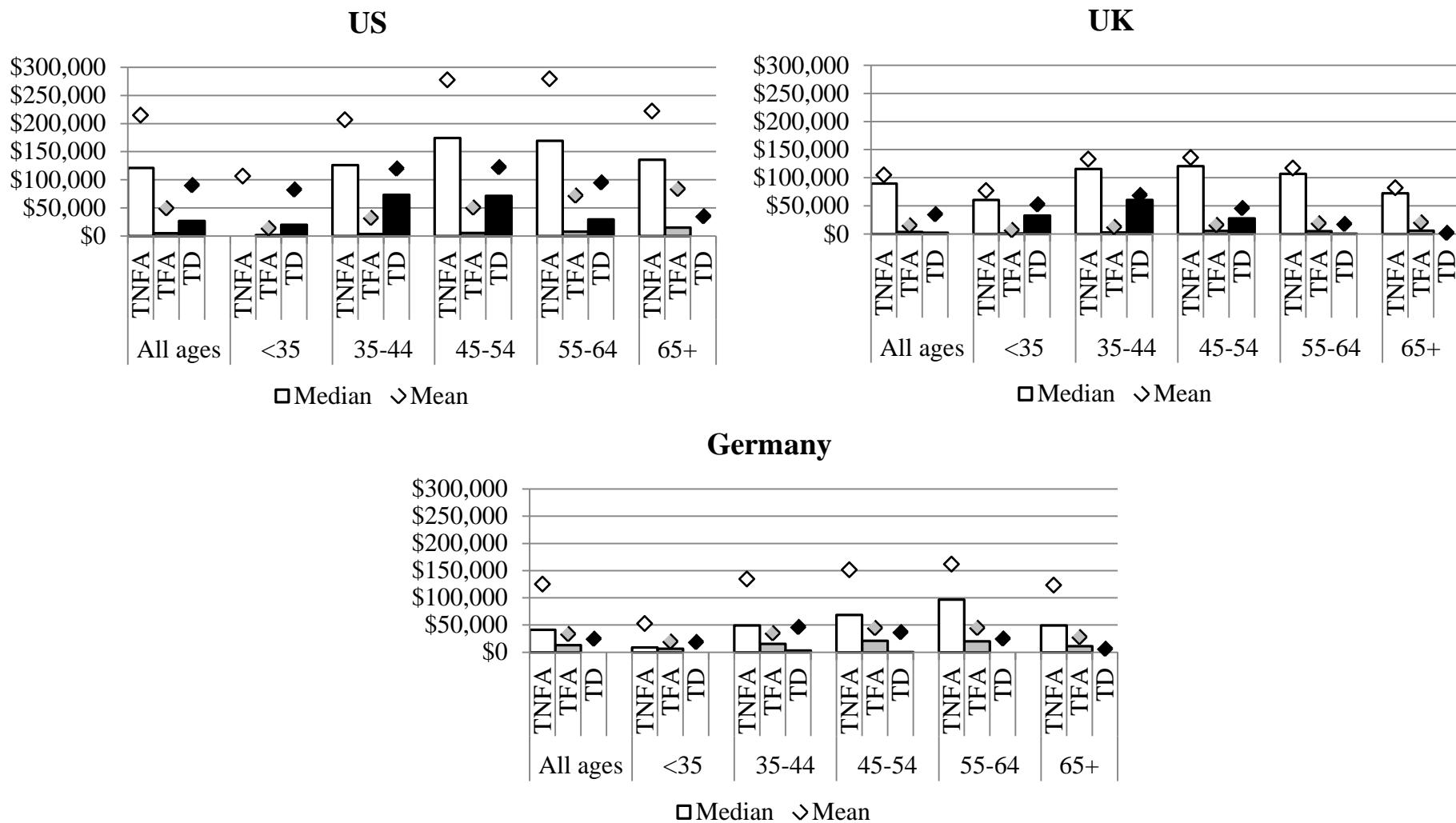
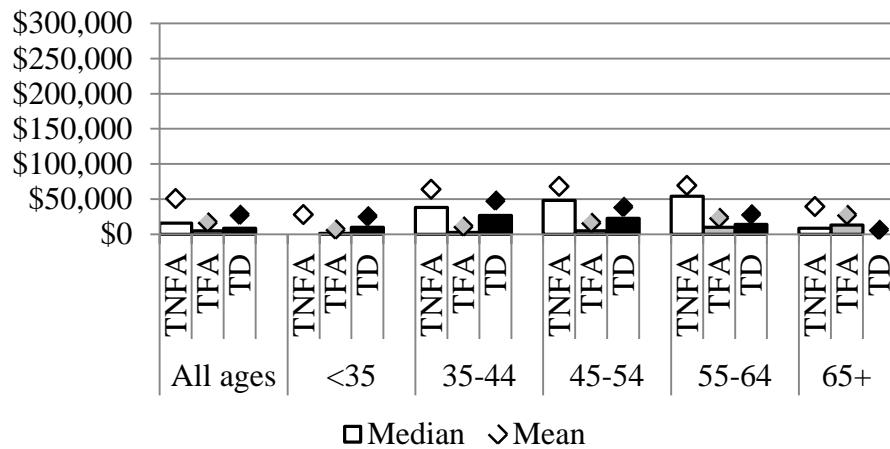
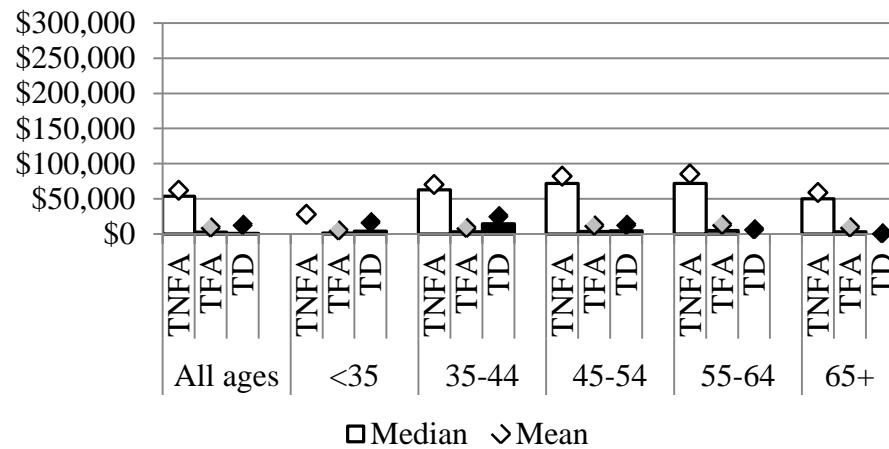
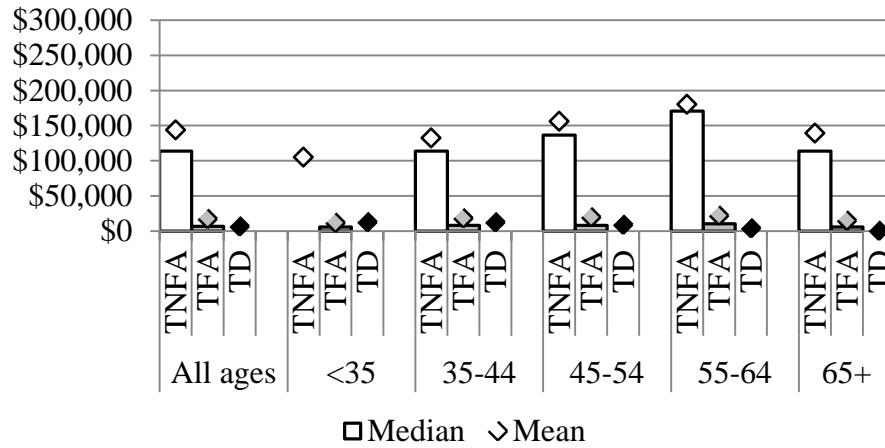
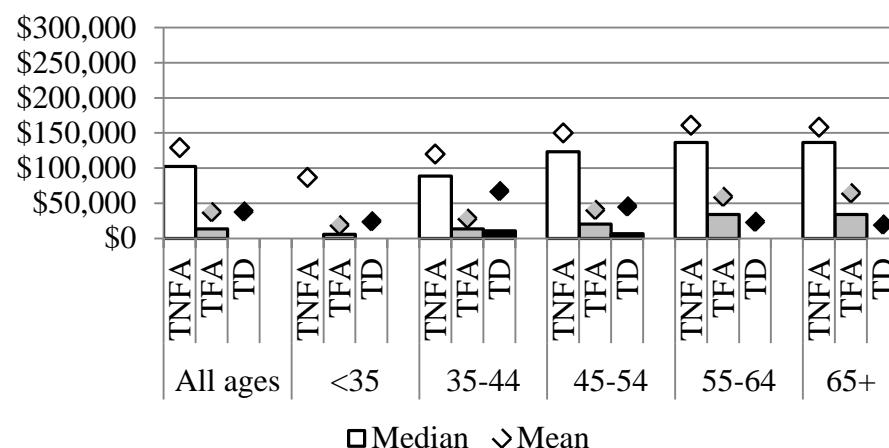


Figure 2: Mean and median components of net worth by age of householder, 2005 US\$

Note: TNFA = Total non-financial assets, TFA = Total financial assets, TD = Total debt.

Sweden**Finland****Italy****Japan****Figure 2: Mean and median components of net worth by age of householder, 2005 US\$ (Continued)**

Note: The Japanese sample comprises individuals aged 19 to 69, hence the age group "65+" refers to individuals aged 65-69 in this case.

The proportion of households in each quintile of the distribution of net worth by age of householder is shown in Figure 3. In all countries, the vast majority of households headed by householders under 35 years of age belong to the two bottom quintiles of the distribution of net worth, i.e. they belong to the poorest 40% of the population in terms of wealth. The proportion of young households found in the two bottom quintiles is particularly high in the Scandinavian countries (85% in Finland and 70% in Sweden), the US (78%), and Germany (69%), while it is lower for Italy (60%), Japan (60%), and the UK (56%). In all countries, young households are by far the age group most often found in the bottom quintile, i.e. among the 20% poorest households in the country. The percentages of young households belonging to the bottom quintile are equal to 29% in Japan, 33% in Germany, 37% in the UK, 38% in Sweden and Italy, and exceed 50% in the US (51%) and Finland (58%). The second poorest age group in terms of wealth is represented by householders aged 35-44. In all countries, about half of the households headed by a householder aged 35-44 are found in the two bottom quintiles (47% in Italy and Germany, 51% in Sweden, 52% in the US and Finland, 53% in Japan, 56% in the UK).

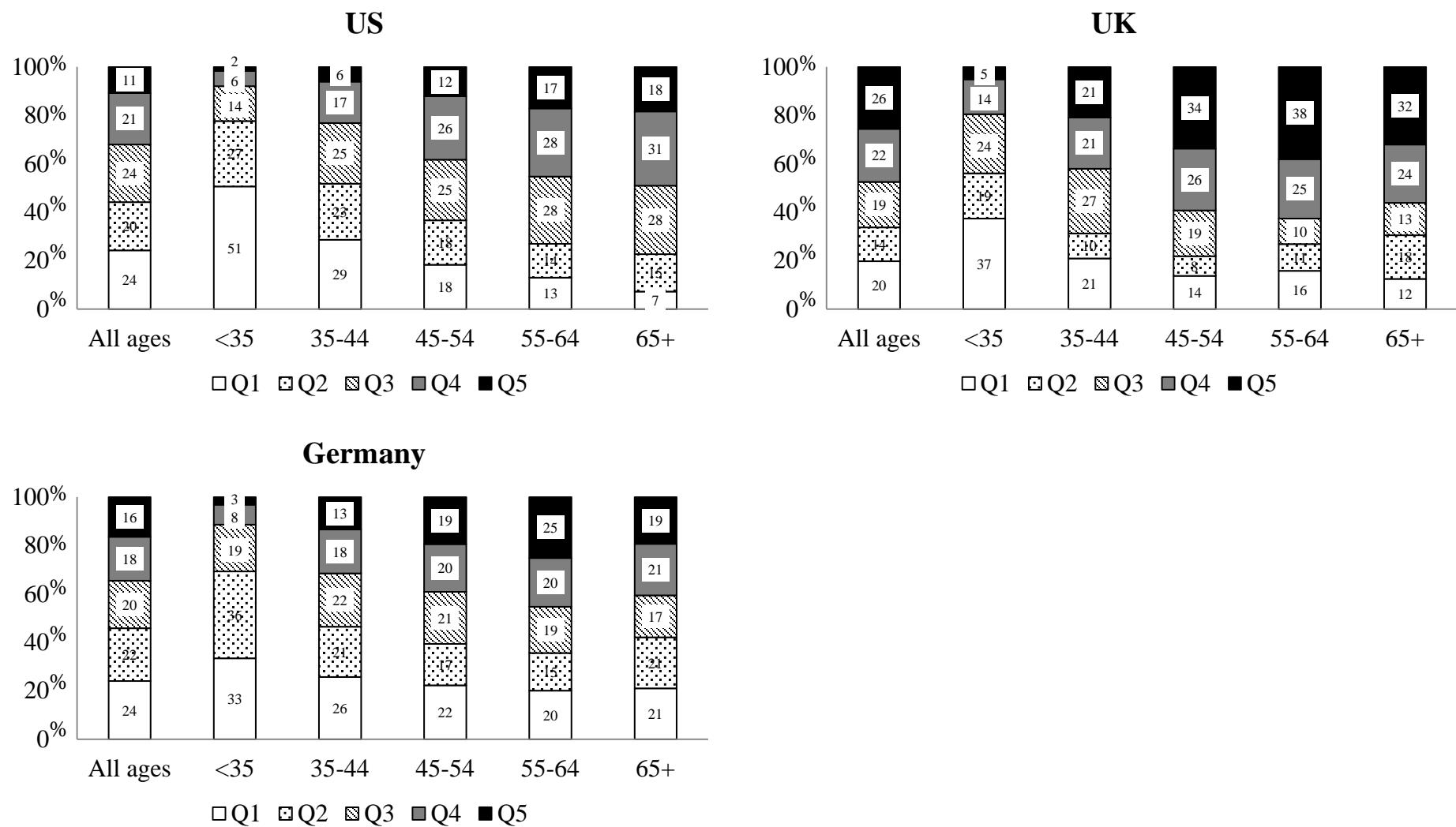


Figure 3: Proportion of households in each quintile of the distribution of net worth by age of householder

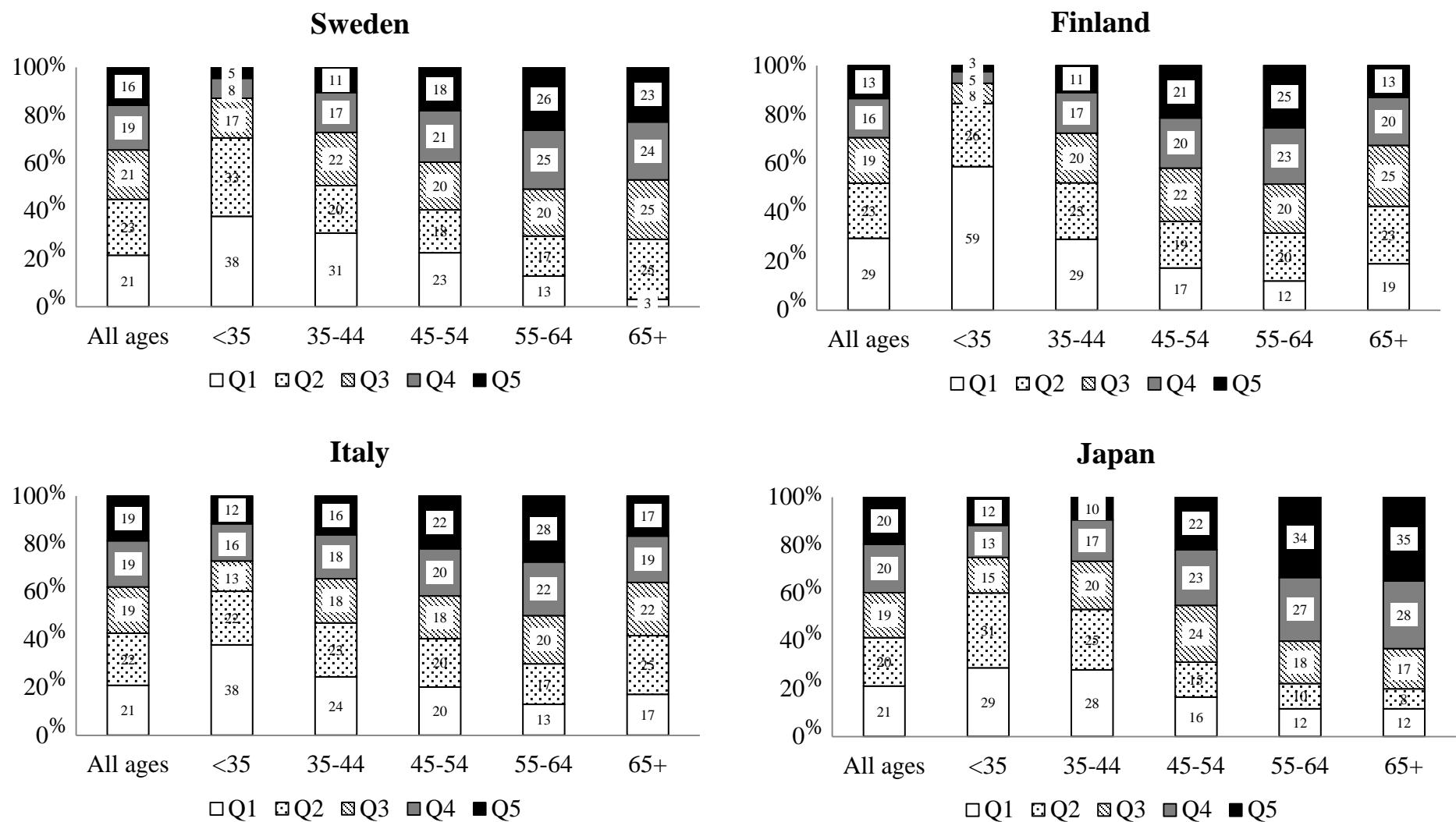


Figure 3: Proportion of households in each quintile of the distribution of net worth by age of householder (Continued)

Figure 3 also suggests that membership to a given quintile of the distribution of net worth is quite homogeneous across countries when the householders are under 35 years of age. There is more heterogeneity as we move to the higher quintiles. Householders in age group 45-54 are almost equally likely to be found in any quintile of the distribution of net worth in five out of seven countries (Germany, Finland, Sweden, Italy and Japan). This means that in mid-adulthood age does not matter much in determining household wealth, and other factors might be important in explaining wealth differences.

4.2 THE TIMING OF WEALTH ACCUMULATION

We show in Figure 4 the predicted net worth by age of householder in the 7 countries, together with the quintiles of the country-specific distribution of net worth. Since the age-wealth profiles presented in Figure 4 are obtained from cross-sectional data, they do not take into account eventual cohort effects (Jappelli and Pistaferri 2000). For each age, we are able to predict the average net worth held by the householders of that age. Comparing the predicted average net worth with the quintiles of the distribution, we deduce wealth accumulation by average ages and compare these ages across societies with different wealth distributions.

Figure 4 shows that in general, for all the societies under study, the age-wealth profile resembles a hump-shaped curve attaining a maximum around retirement age, as predicted by the life-cycle hypothesis. However, the paces of wealth accumulation and de-cumulation differ substantially across societies. For three out of seven countries, namely the US, the UK and Germany, young people in their early 20s start their households holding a negative amount of wealth. In all three countries, age 22 represents the threshold marking the transition from the first to the second quintile of the distribution of net worth. In other words, in the two Anglo-Saxon countries and in Germany, householders aged less than 22 years are among the 20% poor in terms of wealth, while householders aged 22 and above are in the second quintile of the distribution of net worth (i.e. they are such that 20% of households in the country hold less wealth than they hold). Not surprising, the age of 22 corresponds roughly to the completion of tertiary education in these countries. The third quintile is reached when householders reach their mid-20s in the UK and Germany, at age 25 and 27,

respectively, while it takes 10 years longer in the US, where householders reach the third quintile at age 35. If the transition to the second and third quintile is quite fast in the UK and Germany, this is not the case for the transition to the fourth quintile, which is reached at age 42 and 52, respectively. Similarly, the fourth quintile is reached at age 46 in the US. The UK and Germany show a similar hump-shaped age-wealth profile. In both countries, wealth reaches its maximum, equal to about \$97,000 and \$120,000 respectively, at age 63, and then declines to reach the third quintile, where householders remain until age 90. The age-wealth profile for the US presents some unique features that we do not observe for other countries. The pace of wealth accumulation until retirement is certainly the fastest. As age increases between 20 and 60, wealth also increases, and it does so in a linear way. The maximum amount of wealth, equal to about \$259,000, is reached at age 72. Thus, contrary to the predictions of the life-cycle hypothesis, after retirement age we do not see any reduction in the wealth of American households. The percentage change in net worth from one age to the other is very limited between ages 60 to 90 (equal or lower than 1%), meaning that American householders above age 60 today hold on average the same amount of wealth and are found in the fourth quintile of the distribution of net worth (i.e., they are among the 40% richest households in the country in terms of wealth).

A different picture emerges when looking at the age-wealth profiles obtained for Sweden, Finland, Italy, and Japan. Young householders in their early 20s who start their first household in these four countries are found in the second quintile of the distribution of net worth, with the exception of Japan, where they are found in the third quintile.

In the two Scandinavian countries, young householders in their early 20s are among the poorest households in the country in terms of wealth, even if they belong to the second quintile of the distribution of net worth. In fact, they hold an amount of wealth which is only slightly above the threshold determining the transition between the first and second quintile, which is about a zero amount of wealth, equal to -\$3,523 in Sweden and \$2,764 in Finland. We find that age is important for determining the entrance into higher quintiles. In particular, the third quintile is reached at age 35 in Sweden and 41 in Finland, while the fourth quintile is reached during the mid-50s, at age 55 and 57, respectively. For Sweden the maximum net worth equals to about

\$68,900 and is reached at age 71, then declining to the third quintile by age 90. For Finland the maximum net worth equals to about \$83,000 and is reached at age 60. After age 60, net worth starts to decline, but it remains within the third quintile until age 90.

On the contrary, young householders in Italy are closer to the third rather than the first quintile and hence are more similar to peers in Japan. The age-wealth profiles for Italy and Japan show a concavity characterizing the ages of the transition to adulthood. In both countries, young householders in their early 20s are wealthier than peers in their late 20s and early 30s. During the early 30s, net worth starts to increase in Italy to achieve a maximum of about \$153,000 at age 60 to then decline and reach the second quintile by age 90. In Japan wealth reaches a maximum of about £183,000 at age 69.⁴ All households in Italy are found either in the second or third quintile (reached at age 38) of the distribution of net worth, and all households in Japan are found either in the third or fourth quintile (reached at age 54). In other words, in both Italy and Japan we find low inequality of wealth across ages, and the age-wealth profiles are flat around the threshold marking the transition to the third and fourth quintile, respectively.

Our results show that the relationship between age and wealth accumulation differs across countries. In particular, a linear relationship between age and wealth is found for the US. A clear relationship between age and wealth is also found for the UK and Germany, followed by Sweden and Finland. In particular, we find that that age can explain differences in household wealth across the first four quintiles of the distribution of net worth in these five countries, while wealth accumulation seems to be only marginally dependent on age in Italy and Japan. For all countries considered, we do not find any age pattern among householders who are found in the fifth quintile of the distribution of net worth. Factors other than age (e.g. educational attainment) might better determine what happens at the upper tail of the distribution of net worth.

⁴ Results obtained for Japan need to be considered with care because the Japanese sample only included individuals aged up to 69 years. Hence we cannot predict the shape of the age-wealth profile at later ages.

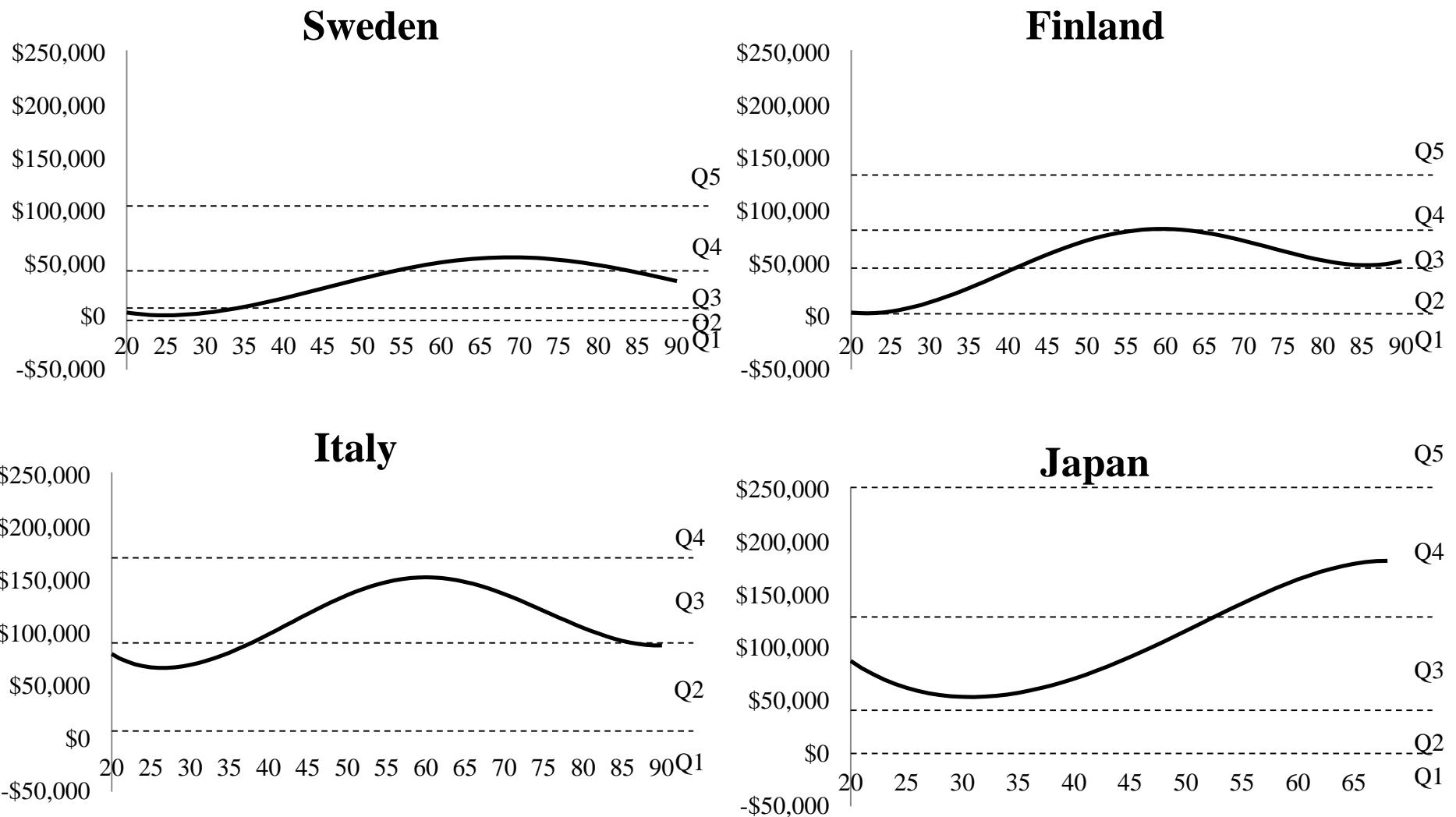


Figure 4: Predicted Net Worth by age of householder, 2005 US\$

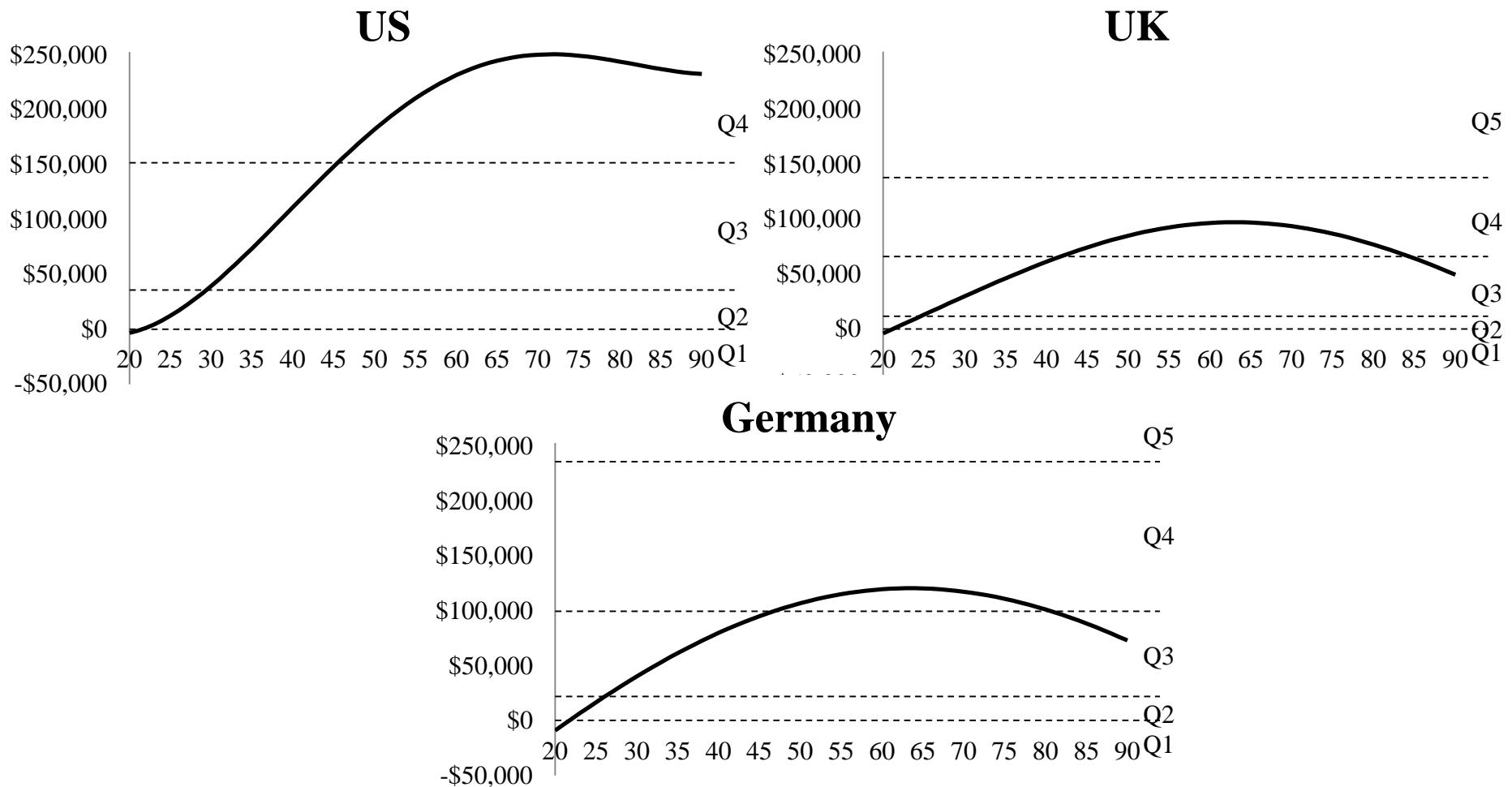


Figure 4: Predicted Net Worth by age of householder, 2005 US\$ (Continued)

Note: Q1 to Q5 identifies the first up to the fifth quintile of the distribution of net worth. Q5 for Italy and the US (equal to \$284,202 and \$462,553, respectively) are not reported in the graph because their magnitude would have caused the y-axis range to increase disproportionately preventing the wealth curves to be shown correctly. For the same reason, the minimum and maximum values of net worth, which are needed to define household membership to Q1 and Q5, are not reported. Results are obtained computing the predicted net worth obtained after having estimated a linear regression model on a transformation of net worth (W) according to the formula $\ln(W + |\min W| + 1)$. Model estimates are reported in Table B in the Appendix.

5 DISCUSSION

Our findings reveal many similarities between the US, the UK, Germany and the Scandinavian countries, while Italy and Japan appear quite different. Achieving a certain amount of wealth, for example, seems to be a precondition to start an independent household for young people in Italy and Japan, while this seems to be less the case in the other countries where young people are more likely to have better access to credit. Given the lack of household debts in Italy and Japan, one might assume that their wealth accumulation depends strongly on parental transfers. These patterns of wealth accumulation provide important clues to explaining cross-country differences in the transition to adulthood. In particular, it is well established that both young Italians and Japanese tend to leave home at much higher ages than their Scandinavian and Anglo Saxon counterparts (Aassve 2002; Raymo and Ono 2007). Whereas these differences have been explained through various factors, it also seems apparent that a lack of credit in the form of loans or mortgages is of key importance.

The analysis shows that very few Italians below the age of 35 are classified as householders, meaning having established their own household away from their parents. Yet, looking at those few who did leave home, they are much wealthier compared to young people in the other countries. The conclusion is that these young people have been able to leave home only because the parents have supported them financially. A similar analogy can be put forward for education. Whereas in Nordic countries the state provides easy access and generous financial support through student loan schemes, young Italians are to a much greater extent dependent upon their parents in achieving their educational goals, which in turn might explain why the majority of Italian students in higher education continue to live with their parents, and consequently choose a college or University in close proximity to the parental home (Cook et al. 2002), which also has more general implications for mobility of young individuals. In so far as they are dependent upon parental support, they cannot easily move away despite this being beneficial both in terms of educational and job prospects.

Our main conclusion is that postponement in the timing of wealth accumulation is likely to result in a postponement in home leaving. We suspect that the apparent intergenerational dependency in the South of Europe and also in Japan does play a role

in the late and latest-late transition to adulthood characterizing these societies. Compared to other settings, the South of Europe has a stronger preference for homeownership, and accumulation of wealth in the form of a house is frequently considered a precondition to leave the parental home (Holdsworth and Irazoqui Solda 2002). There are however several impediments to the first house acquisition in the South of Europe. The first comes from a poorly functioning labour market; where it takes young people a relatively long time to establish stable employment, which in turn delays the accumulation of savings. Another impediment is poor access to credit, largely driven by a poor functioning system of loans and mortgages. Both of these market imperfections forces young individuals to instead rely on parental support and assistance, and thus, Italian and Japanese parents play a much more direct role on young individuals' transition to adulthood. These features have important implications, not least because there is heterogeneity in the way parents are willing or able to make transfers to their children. Moreover, parental transfers might have strategic purposes in the sense that they might be used to influence their children's behaviours (Cigno, Giannelli, and Rosati 1998) e.g. towards choosing marriage rather than cohabitation (Di Giulio, Rosina 2007), or choosing to live close to parents (Tomassini et al. 2003). In addition, in so far as downward transfers take place in the form of inheritance; increasing life expectancy will further delay wealth accumulation for young individuals in these countries.

Intergenerational dependence has, no doubt, increased in the current climate of economic recession. In Italy the youth unemployment rate is above 40% among 15-24 year olds (Istat 2013), and most young adults who are lucky enough to find employment are predominantly on short term contracts. The economic crisis is likely to further cement the close dependency across generations in those countries where credit is hard to obtain. A key coping strategy for many young Italians in time of economic hardship is to rely on parents, often in the form of either staying at home longer, or to move back in with them if they had already moved out (Aassve, Cottini, and Vitali 2013).

Cross-country comparisons of household wealth have many limitations. For example, across different welfare regimes, holding the same amount of wealth (i.e. using the same unit for measuring wealth) might have different meanings. It is difficult

to evaluate whether belonging to the 20% poorest quintile of wealth is the same in e.g. Sweden and in the US. Moreover, the most recent available data, as used here, is not exactly very up to date. Results presented in this paper refer to data measured during the 2000s. The economic situation of young people at the beginning of the 2010s, however, has changed considerably. During the recession which, starting from the late 2000s has hit all advances economies worldwide (though to different degrees), young people were found to be one of the most vulnerable group in terms of worsened economic conditions and lost opportunities (Aassve et al. 2013; Bell et al. 2011). Despite that all age groups suffered the economic uncertainty brought about by the recession, the wealth gap between the young and the old has widened even further (Fry et al. 2011). Most of all, further research is needed to understand if and how accumulation of wealth in different age strata affects the timing of transitions to adulthood. In the face of growing inequality and growing family diversity, parents in any given society and across societies are quite differently situated to help their young adult children make the transitions that are a pathway to full incorporation into society, in particular, educational completion, home leaving, family formation, and childbearing decisions. The decline in public support makes private transfer within families ever more important to navigating the transition to adulthood.

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APPENDIX

	US	UK	Germany	Sweden	Finland	Italy	Japan
Age	-0.014*	0.044***	0.022***	-0.0628792***	-0.116***	-0.195***	-0.078***
	(0.00E+00)	(0.002)	(0.004)	(0.009)	(0.037)	(0.056)	(0.019)
Age2	0.001**	-3.53E-04***	-1.95E-04**	0.002***	0.004***	0.006***	1.81E-03***
	(0.00E+00)	(2.12E-05)	(8.85E-05)	(2.79E-04)	(0.001)	(0.002)	(4.65E-04)
Age3	-7.41E-06**		2.41E-07	-0.0000228***	-5.80E-05***	-8.07***	-1.21E-05***
	(0.00E+00)		(5.48E-07)	(3.54E-06)	(1.49E-05)	(1.93E-05)	(3.56E-06)
Age4	3.08E-08*			8.43E-08***	2.60E-07***	3.44E-07***	
	(0.00E+00)			(1.59E-08)	(6.79E-08)	(8.39E-08)	
Constant	14.395***	10.860***	12.359***	12.616***	12.984***	14.082***	13.895***
	(0.00E+00)	(0.052)	(0.069)	(0.100)	(0.408)	(0.710)	(0.245)
AIC	-19,352.81	4,138.72	12,425.04	9,160.49	3,355.40	12,857.64	2,564.49
LogLikelihood	9,680.41	-2,066.36	-7,926.22	-5,504.16	-1,672.70	-6,423.82	-1,278.24
N.	18,101	3,765	53,543	16,604	3,679	7,580	2,648

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table B: Results from Linear Regression Model used for Figure 4

Note: Standard errors in parentheses. Results from a linear regression model where the dependent variable is a transformation of net worth (W), expressed in national currency, according to the formula $\ln(W+/\min W/+1)$. Independent variables are the terms of an age polynomial. The optimal number of terms (i.e. the optimal model specification) was chosen according to the Akaike information Criterion (AIC). Standard errors for the US and Germany are multiplied by the square root of five due to multiple imputations of data in these two samples.

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