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An international comparison based on household panel and time use data

Author(s) : Elsa Fontainha

For additional information please contact:

Author Name(s) : Elsa Fontainha
Author Address(es) : Technical University of Lisbon - Department of Economics
R. Miguel Lupi, 20 Gab.514-1249-078 Lisboa-Portugal.
E-mail: elmano@iseg.utl.pt
Author E-Mail(s) : elmano@iseg.utl.pt
Author FAX(es) : 351 213922808
Author Telephone(s): 351 213925993

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The work-to-retirement transition effects on economic well-being of individuals and intergenerational households
An international comparison based on household panel and time use data

Elsa Fontainha

ABSTRACT

The paper contributes to the knowledge of the effects of the work-to-retirement transition on individuals and households. The main research question is: What are the changes in time allocation and in well-being of the individuals and household after its members retire from the labor market? Particular attention is given to intergenerational households in order to focus intergenerational transfers in time and money, which occur within and between the households.

The trends in family size, composition and ties and the present debate on increasing the normal retirement age, call for the need for a better knowledge of the effects on individuals and households of the work to retirement transition.

To answer the research question, the present paper brings together information from different sources and from a total of 24 countries. It uses four micro data bases: the American Time Use Survey (ATUS - BLS), the Multinational Time Use Study (MTUS), the European Community Household Panel (ECHP-Eurostat), and the Survey of Health, Ageing and Retirement in Europe (SHARE).

The empirical analysis of the relationship between the well-being of the elderly and that of the families is conducted through different methodologies: descriptive analysis and indicators, private transfers' models estimation (probit and tobit) and multivariate analysis of variance. The results reveal the existence a similar cross-country pattern of well-being changes after retirement: a personal income decrease and a slight increase in other aspects of well-being as leisure and personal

time. Elderly people have a role as receivers and givers of money and time in *inter vivos* private transfers. The exploratory empirical evaluation of those roles suggests that, in some countries, retirement status contributes to an increase in well-being of the next generation. The empirical evaluation carried out of the role performed by the elderly, in particular the retired, shows that they contribute to the well-being of other members of the same generation as their own, above all in the case of elderly couples. The contribution of the elderly to the well-being of younger generations, particularly that of their grandchildren, when analyzed in terms of time allocated to child care, finds expression only in some countries, while no statistical weight whatever is presented in the majority of the 24 countries analyzed. Both the time allocated to child care activities and the participation rate present higher values among the elderly retired compared to the elderly non-retired, as was expected. Among the intergenerational families, the time allocated the children by parents who are active in the labor market is generally greater than that allocated by the retired in families in which children are present.

Key words: Time use; Well-being; Elderly; Retirement; Time Allocation; Intergenerational *inter vivos* private transfers

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INTRODUCTION

The trends in family size, composition and ties and the present debate on increasing the normal retirement age, call for the need for a better knowledge of the effects on individuals and households of the work to retirement transition.

The main research question of this paper is: What are the changes in time allocation and in well-being of the individuals and household after its members retire from the labor market? Particular attention is given to intergenerational households in order to focus intergenerational transfers in time and money, which occur within and between the households.

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The present paper combines two types of information in order to create a more complete picture of the total transfers associated with well-being; one concerning income sources and money transfers and the other time use and associating well being.

The family as an entity, which consumes, trains and supplies labor and produces non-market goods, has long been considered by economists to be homogeneous. Within the family, however, decisions are taken by each of the family members and these decisions influence the behavior of the other members and the aggregate family behavior

The decisions taken within the household[1] are related to income, wealth and time distribution and re-distribution intra-household and inter-households, fertility choices, human capital investment, labor market participation and retirement.

Non-unitarian household models, have contributed to a better understanding of household decisions. Game theory applied to intra-household relationships has also proven useful for the understanding of fertility, consumption, saving and time and financial resources allocation. Private transfers, in money, time or kind (e.g. meals, clothes) are important because they contribute to both the objective and subjective well-being of the individual, either as receiver or as donor, and affect the final outcome of public policies of distribution, fertility decisions, inequality or equality across generations, saving and wealth accumulation. (Shoeni, 1997).

Intergenerational households, defined as households in which different generations are co-residents, are analyzed in more detail in this paper in order to understand the private transfers across generations. One particular group of family members is studied in more depth: elderly individuals and, if the latter are labor market participants, their pre-retirement and post-retirement status.

The consideration of both time and money households and intra-household transfers, as far as we know, is relatively scarce in the economics literature. Altonji *et al.* (1996) and Schoeni (1997) pioneered the empirical analysis in this field using PSDI-supplement 1988 survey data.[2] They considered *'inter vivos'* transfers[3] and tested altruism and exchange models, concluding that there was some evidence of altruistically motivated transfers. A recent literature survey (Laferrère and Wolff, 2006) in this domain considers the lack of information in general and in time use in particular one of the reasons for inconclusive empirical results about transfer models. This paper,

[1] In this paper we will use *family* and *household* terms with similar meaning. The definitions of households presented in Appendix 1 Table 2 allow in most of the cases the equivalence.
[2] PSDI 1988 was used by several authors. In Appendix 4 of this paper the relevant survey questions are transcripts.
[3] To be distinguished from bequests.

focusing on time use data drawn from time use surveys or other databases, helps address the information shortfall.[4]

The paper is organized as follows. **Section 1** presents the theoretical background of transfers and related well-being and summarizes some empirical results of previous studies. In **Section 2**, the international databases are characterized. Methods of empirical analysis are presented and discussed in **Section 3**. Next, in **Section 4** the characteristics of work-to-retirement transition and the transfers in time are described by country, household types, age and employment status of the members. Some exploratory measures of individual well-being dynamics and changes between generations using time use data are proposed. This section also tests models of private giving of time using Probit and Tobit models. Empirical results are presented and discussed. Finally, **Section 5** concludes and suggests future research avenues.

1. THEORETICAL BACKGROUND

Time use studies and well-being studies converge in different ways: time allocation data is used in non-market production evaluation, leisure time is included as a component of quality-of-life indexes, information on the perception of stress, lack of free time and self-reported well-being contribute to a broader analysis of well-being.

Elderly well-being is frequently centered in the income, income distribution and replacement rate after retirement.[5] This paper specifically analyses other aspects of the well-being. Time allocation and employment status are important because after

[4] Is the case for example of SHARE data base presented in Appendix 1, which allow a detailed study of well-being production and distribution, as the research of Attias-Donfut *et al.* (2005) demonstrates. SHARE data base is presented in Appendix 1.

[5] Wolff, E. (2002) stress the importance of further aspects which contribute for the elderly well-being analyzing the US case. Förster and Ercole (2005) compare about thirty developed countries concerning poverty and elderly poverty and also stress the limits of the income as the only measure of well being.

retirement, time eventually becomes a less scarce resource for each individual. The reallocation of the previous working time can combine selfish with altruistic behaviors, contributing to increased well-being of the individual, household members, relatives or friends.

Intergenerational private transfers of money and time within the household and between households are important for a better knowledge of the economic behavior of households and individuals. The empirical tests of altruism, exchange and other models of private transfers require however detailed information that is seldom available. It is a difficult task to obtain data from intergenerational private transfers and time use data contributes to fill the gap[6] as this paper intends to show.

1.1. Intergenerational private transfers in money and time[7]

From the economics literature on intergenerational transfers, seven motivations for transfer are identified: altruism, in which the utilities of donors and receivers are connected; exchange, which considers separate utilities for donors and receivers; insurance, which is related with income fluctuations; access to credit;[8]comparative advantage of the family members; 'warm glow', which considers the donor's behavior, independent of the receiver's needs; demonstration effect for the next generation.[9]

These motivations have inspired alternative private transfer's models, which differ in several respects: the reasons for the transfers; the agents between whom the transfers take place (e.g. parents and adult children); the transfer flux direction (e.g. from adult children to parents, or vice versa); the nature of the transfers (e.g. financial, in kind, care time or other); the dynamics and elasticity of the transfers according to the changes

[6] The contribution of time use data in general and ATUS in particular to time allocation within households is discussed by Hertz and other (200x).
[7] Recently, Laferrère and Wolff (2006) published an excellent survey of the literature on this issue.
[8] A mixture of altruistic and exchange motivations, as in motivation 3 above and the following, motivation 5
[9] The six first motivations were enounced in a seminar article of Cos (1987) and later developed by Altonji *et al.* (1996) the last motive was empirically tested using French data Wolff, FC (2001).

occurring in donors' or receivers' characteristics (e.g. increase or decrease, positive or negative).

There are two main models: the altruistic with many variants and the exchange model. There are also other mix models that combine elements of both.

The altruistic model assumes that transfer is done (for example from parent to children) independently of present or future reciprocity. The donor increases the well being of the recipient but is not expecting any compensation for it.

The exchange model considers that present transfers (for example from parent to children) (T_t) are done for the latter 'acquisition' at $t+n$ of old age support. So, in this case, the transfer includes a *qui pro quo*.

Following the presentation of Cox (1987) and Cox *et al.* (2004) the two competitive models could be represented :

$U_d = U (C_d, s, V(C_r, s))$

The utility of the donor (U_d) depends of the donor consumption (C_d), and the recipient well-being (V). Both utilities are also dependent of s .

The s (labeled as 'services') could represent future financial transfers from the present receiver (r) to the present donor (d). But, what is more interesting because related directly with time allocation, the s could also represent the help with home production and other aspects and services not provided by the market such as affection and companionship. Cox (1987) considered that child care had no effective without equivalents on market services.

The budget constrains of the donor and the receiver are respectively $Cd = Id-T$ and $C_r = I_r + T$ where I_i are the pre-transfer income and T are the financial transfers. Note that the authordoes not include in the expression the time budget constrain.

For summarizing the intergenerational transfer's categories, we propose a input-output matrix format (*Table 1*). That format is useful for the organization of the

literature/models and, as we will see later in this paper, for the identification of information needs.

Table 1 represents, in a matrix format, all the possible private transfers considering three generations (G1, G2 and G3) and an additional category called 'Other' if the 'from who' or 'to whom' transfers are unknown. G1 is associated with Grandparents, G2 with Parents and G3 with Children. The transfers can be interhouseholds or intrahousehold.

Each generation could be either a receiver, a donor or both. *MT* denotes money transfers and *TT* denotes time transfers. The main diagonal of the squared matrix represents the transfers between those who generally belong to the same generation (e.g. brothers, sisters, spouses) and is not relevant to the current research.

All the other cells represent transfers among generations and are represented using the usual input-output notation.

Table 1 – Intergenerational private transfers in money and time

	G1 receives from…	**G2** receives from…	**G3** receives from…	**O** receives from…
G1 gives to...	(*) MT_{11},TT_{11}	[1] MT_{12},TT_{12}	[2] MT_{13},TT_{13}	[7] MT_{14},TT_{14}
G2 gives to...	[3] MT_{21},TT_{21}	(*) MT_{22},TT_{22}	[4] MT_{23},TT_{23}	[8] MT_{24},TT_{24}
G3 gives to...	[5] MT_{31},TT_{31}	[6] MT_{32},TT_{32}	(*) MT_{33},TT_{33}	[9] MT_{34},TT_{34}
O gives to...	[13] MT_{41},TT_{41}	[12] MT_{42},TT_{42}	[11]MT_{43},TT_{43}	[10]MT_{44},TT_{44}

(*) Transfers between the same generations are ignored on the present research.

The indexes *i* and *j* associated with MT_{ij} and TT_{ij} represent the individuals, donors or receivers, who belong to a specific generation. By convention the rows are

represented by '*i*' and the columns by '*j*'. For example, the cell [1], with MT_{12},TT_{12} , represents the fluxes from generation G1 to generation G2. For example, the cell [3], with MT_{21},TT_{21} , represents, reciprocally, the fluxes from generation G2 to generation G1. The column G2 represents all the fluxes that G2 receives from all generations and by others. The line G2 represents all the donors made by G2 to all the generations (G1, G2 and G3) and to others unknown (O).

It is not our intention to present a review of the literature on private transfers[10] but only to illustrate some empirical results obtained from other authors who use money and time transfers concerning the private transfers models and assumptions. There is a predominance of studies in relation to the transfers between parents and children (G2 and G3), while transfers between G1 and G3 are rare. One reason for this could be found in the scarcity of panel data covering a long time span. There is longitudinal data for the United States from the Health and Retirement Study (HRS). In Europe, as mentioned in Section 2, the ECHP data does not fill the information gap because it has only 8 waves and does not include specific questions about donors and receivers, despite yielding information about private transfers. However the Eurostat' survey which is substituting ECHP[11] includes receipts and also expenditures in private transfers.

Some empirical testable hypothesis of the models are: the donor's behavior concerning time depends on the donor's income and the on the donor's well-being; the private transfers received in money and time are positively related with the needs of the receiver; the altruistic behavior is related to the comparative advantage of the family members.

Table 2 illustrates some recent studies on transfers considering generation as criterion. Any private transfer implies at least two agents: the donor and the receiver

[10] For reviews of literature see Cigno (XXX) , Cox (XXX)] and Laferrere and Wolff , FC (2006)
[11] For a comparation between the two surveys see Eurostat (2005)

who could be members of the same generation or not. That transfer could be: reciprocal, there are transfers in both directions (for example M_{32} and M_{23} exist); balanced when the transfer amount is equal in both directions (e.g. the amount of both flux are equal, $M_{32} = M_{23}$); synchronic when the transfers occur at the same moment t.[12]

Table 2 – Intergenerational Private Transfers (Money and Time)
Recent Studies[13] and Data Sources

	Generation G1 receives from…	**Generation G2** receives from…	**Generation G3** receives from…	**Others Unknown** receives from…
Generation G1 gives to...	Cardia and Ng (2003) HRS* and others	Attias Donfut et al. (2005) – SHARE* Cardia and Ng (2003) HRS* and others	Cardia and Ng (2003) HRS* and others	
Generation G2 gives to...	Attias Donfut et al. (2005) – SHARE* Cardia and Ng (2003) HRS* and others Jellal and Wolff (2002)- CNAV*		Attias Donfut et al. (2005) – SHARE* Cardia and Ng (2003) HRS* and others Kuhn and Stillman (2004) RS* Litwin (2004) IES*	
Generation G3 gives to...	Cardia and Ng (2003) HRS* and others	Attias Donfut et al. (2005) – SHARE* Cardia and Ng (2003) HRS* and others Sloan, Zhang and Wang (2002) HRS* Kuhn and Stillman (2004) RS* Litwin (2004) IES* Cox and Stark (2005) NSFH* Wolff (2001) CNAV*		
Others Unknown gives to...				Cox et al. (2004) PS*

.

The economic models of private transfers consider different assumptions concerning these aspects. Altruistic models stress the non-reciprocal transfers, while on

[12] The timing of the transfer is not represented on Table 1 . The theory frequently empathizes the distance in time between the gift moment for example and the inverse flux. This aspect is important when game theory is applied.
[13] Some results of studies between 1987 until 2002 are summarized by Laferrere and Wolff (2006 :71).

the contrary, exchange models consider mainly the balanced transfers. The intergenerational transfer models, a particular type of model developed in order to explain private transfers between different generations generally linked by family ties, place particular emphasis on the unsynchronical transfers (e.g. there is a transfer in period *t* from the parental generation to the generation of their children, whereas in period *t+n*, a transfer will take place from the adult child to the parents).

1.2. Well-being concepts and measurements

The analyses of both time use and well-being are closely associated in many ways, each of them having given rise to specific theories and models. In view of the aims of this research, some of these theoretical aspects are important for the present analysis.

Firstly, the concepts of well-being and quality of life and the ways of evaluating it these through the construction of indices are presente.

Next, the models for the allocation of time (Becker, 1974; Hammermesh and Pfann, 2005; Gronau and Hammermesh 2001; Pollack, 2003) and income (Modigliani, 1981) during the course of the life cycle are briefly presented.

In particular, the analysis of the behavior of the supply of labor and the decision to retire as well as other crucial decisions during the life span also contribute to our understanding of the characteristics of the elderly before and after the processes of transition to inactivity.

A fourth aspect to be borne in mind is the behavior of home production and its respective accounting for the creation of well-being.

The growing availability of time use data and the trends to their harmonization contributes to an increase of time allocation research , namely time allocation amongst the elderly. Gauthier and Smeeding (2000a,2000b) analyzed the time allocation of old people according different activities, and the same authors researched the trends for

some countries Gauthier and Smeeding (2001), Stone and Harvey (1999) studied the total work retirement[14], and Hamermesh (2005) studies the retirement behavior based on recent ATUS data.

The measure of well-being combining time use data and subjective measures of satisfaction associated at each activity was applied by Juster (1985) and was more recently reexamined by Osberg and Sharp (2002) constructing an indicator of well-being at a macroeconomic level.

2. DATA

The present study uses four micro databases that have in common the inclusion of time allocation variables and other well-being[15] and contextual related variables. Technical characteristics of data used in the present research, some of them made available very recently[161] are briefly summarized on *Appendix 1*, *Table 2.*

In each step of our empirical analysis different data sources are considered. The reasons for this are: to include the largest number of countries and situations and to combine multiple aspects of well-being.

The main variables sources of information used in the study are: from ATUS the time spent on market and non-market activities, including secondary time with child care and earnings; from MTUS and HETUS the time spent on market and non-market activities and household income level; from ECHP time spent on care activities on assistance to child, elderly or neighbors and work and non work earnings as transfers from Social Security and private transfers.

It must be pointed out that country coverage, sample size, variables related with well-being, age intervals, household categories and retirement concept among other

[14] Total work defined as the sum of market and non market work. Retirement from the first is different from retirement of both.
[15] Life satisfaction and health feeling are included aspects in ECHP and SHARE.
[16] Last update of data from American Time Use Survey (ATUS) from Bureau of Labor Statistics (year XXXX results) was at XX July 2006 and the last release of Multinational Time Use Studies data was on 15 October 2005.

aspects vary across the databases of each country considered as shown in Table 2 of Appendix 1.databases. The relevant variables for the study of private transfers and well-being are also presented in *Appendix 2* for each of the data sources considered.

The data from the different sources has some shortcomings: it does not specify the specific receiver of assistance with time, nor does it identify the specific donor. Furthermore, the status of co-residence between donors and receivers is not clarified.

The empirical evidence on intergenerational transfers is difficult to test because the information is either scarce, of weak quality, or unrepresentative of the population as a whole.[17]

3. METHODOLOGY

The methodologies adopted, which are highly dependent upon the nature and availability of data, include a descriptive component, model estimation and multivariate analysis. The time use data available present specific difficulties in their statistical and econometric treatment, as has been underlined by several authors (for example Klevmarken, 1998 and 2005; Apps, 2002 and 2005).[18]

The measurement of well-being and the quality of life involves other aspects besides the economic ones, although, in recent years, it has earned growing attention on the part of economists, particularly with regard to the inclusion of subjective aspects in the behavior patterns of economic agents (Frey, 2004).

One of the central concerns in this paper was to select, from amongst the multi-dimensionality of well being, those aspects open to interpretation through the results of time use surveys, seeking to develop measurements that had been created and tried out earlier. The information available about time use allows us to draw closer to the aspects of well-being both through the records of time spent in activities that provide individual

[17] The Health and Retirement Study (HRS) in US [http://hrsonline.isr.umich.edu/] for example, has detailed information on transfers, but includes only a part of the US population. The Survey on Health, Aging and Retirement in Europe (SHARE) [http://www.share-project.org] has the same problem, because covers mainly persons with 50 years old or upper.

[18] The User' guide of MTUS data also call the attention for this aspect namely in relation to the use of multivariate methodologies (Dosman and Fisher, 2004).

well-being (such as leisure time, free-time or personal time activities) and through the inclusion of questions on the perception of well-being and stress (Michelson and Crouse, 2002; Gershuny, 2001) which could be associated with the activities.

The empirical analysis proceeded in several stages: [19]

First, a description of time allocation of elderly people, stressing the well-being activities and considering the period before and after the retirement age[20] is presented. It is based on European Time Use harmonized data (HETUS-Eurostat) before and after retirement,ATUS 2003, MTUS (several years and countries) and SHARE micro data. Some comparative measures are proposed and computed. (Section 4.1.)

Secondly, in a more detailed approach, and also more accurate, because the other does not include panel or even pseudo-panel data[21], we propose a methodology for following the same individual at pre and post retirement. We study the changes that occurred before and after retirement in relation to satisfaction, perception concerning multiple aspects of life, socialization, health and income in a total of 413 observations/individual. Time allocation, well-being, and behavior and satisfaction level before and after the retirement date are analyzed. In the case of Portugal, micro data from the European Community Household Panel (ECHP) is used, considering eight waves with constant and non-constant compositions (1994-2001), along with Portuguese Time Use microdata (PTUS). The transition process based on panel data is applied only to one country because it is the only panel data source available [note: to the author and at this moment] but could be applied to all ECHP 15 European countries.[22] (*Section 4.2.)*

[19] All this steps are not concluded at this time (July 3)
[20] Under the assumption of retirement age at 65 years old. According OECD (2005) retirement age (legal) are for the most part of the countries analyzed 65 year.
[21] *Pseudo panel data* as defined by Stone and Harvey (1999). Concept of *total-work retirement* also presented by the same authors will be applied.
[22] ATUS will allow also this kind of analysis when more information will be available.

Thirdly, an analysis of the differences between two groups of elderly (one group of retired and other individuals not in the labor force and a second group of employed individuals) both of the same age group.For each type of family, samples are divided into two age groups (51 to 64 and 65 and older) and two employment status groups (employed and non-employed). In each country normal retirement age is considered as defining the group's frontier. In this paper, the analysis by ages is conducted in continuous terms, whenever there is sufficient data available. For some countries and periods, data is only available for age groups.[23] Retirement age was defined for each country according to two criteria: the legally established age of retirement (which in certain countries differs for men and women) and the age that applies in practice. The former may or may not be compulsory, whereas with reference to the latter, the average age at which individuals retire from the labor market was considered for each country. The effective age of retirement is generally lower than the legally established age[24] With reference to the legal threshold age, two groups were defined: before and after retirement age, which was also the case with regard to the other threshold age, the effective age of retirement. Since the participation rate of women is lower than that of men, with wide variations among countries analysis of each group was restricted to the male population only. [25]

The disparities between those groups concerning total and net income are computed. These disparities are also associated with time allocation patterns and self-perception of well-being. The study of the relationship between the well-being of the elderly and that of the families is also conducted through multivariate analysis

[23] The countries and periods for which there is only incomplete information on the ages of the respondents are presented on Annex 1.

[24] Recent amendments and the specificity of each country signifies the need for caution with regard to the data concerning aspects of the retirement age. For example, differing retirement ages across different occupational categories, programs of phased retirement, etc.).

[25] The unemployed are excluded, since it is considered that there is no unemployment to be found in the group of pre-retirement age.

of variance and non-parametric tests. This analysis uses ATUS and MTUS micro data. (*Section 4.3.*)

Fourthly, for 11 countries time transfer models are tested and discussed in order to find the predictors of participation and the explanation for the amount of time spent on caring activities. (Section 4.4.1) Additionally the characteristics of the altruist agent are illustrated (Section 4.4.2)

Finally a country typology according the previous results is developed and discussed in relation to socio economic, demographic, cultural and institutional characteristics of each country. (Section4.5..)

4. RESULTS

4.1. Differences After retirement – cross country comparisons

4.1.1. Differences by age group (Eurostat Harmonized Time Use Data)

Table 3 through *Table 7.2.* are constructed from Eurostat data and show for 10 European countries some aspects related to elderly well being before and after retirement age [26] adopting age 65 as a frontier for employment status.

Besides *watching television*, the leisure activities showing the greatest increase after retirement in European countries are *hobbies and other games* and *other reading* (*excluding books*).[27] In general, *hobbies and other games* take up another 20 to 30 minutes per day and *other reading* occupies another ten to twenty minutes per day. In the case of Hungary, Slovenia and Estonia, the time spent in *hobbies and other games* and *other reading* either remains constant or does not increase in any significant way.

Religious activities, which on average occupy very little time when one considers the average overall time spent in leisure activities (including weekends and other days),

[26] The data published by Eurostat do not include cross information by age and employment status. The present paper consider the 65 years of age as the frontier before and after retirement This is only a proxy, because the actual age of retirement in all European countries is less than 65 years, the legal age for retirement. There are also differences for male and female legal age of retirement (for example UK and Austria were age for women is lower).

[27] See Fahar (2005) for a model of investment on informal education considering age.

show a slight increase in all countries, whilst *other participatory activities* remain constant or grow smaller.

The time spent in *social activity* remains relatively constant after retirement, but *socialisation with the family* (one of the components of social time) is reduced in all countries except Hungary and Estonia.

Furthermore, in regard to the activity of *socialization, telephone contact* increases by roughly 10 minutes per day in all European countries and, in the case of the United States (where the use of *e-mail* was also included in this category) such contact also increases by less than 10 minutes per day on average, with women spending twice as much of their time in this activity (0.16 hours for men and 0.32 hours for women).[28]

Also linked to the idea of leisure are the activities of *resting* and *walking*, which increase on average by roughly 30 to 40 minutes and 10 to 20 minutes per day, respectively.

The diversity of leisure activities is also reduced. According to some authors, this narrower range of activities undertaken is accompanied by negative effects on well-being, assessed both objectively and subjectively. In relation to this particular aspect, see the work of Hammermesh (2005: 80), Winston (1982), Glatzer, Von Below and Stoffregen (2004), and NSF (2003).

Some leisure activities are absent from the everyday habits of retired people, in some cases because they did not exist before retirement or were considered of very little importance. The most relevant case is that of *computer and video games*, which had practically no score for all countries, except in the case of Germany.

As far as *study activities* of a formal or informal nature are concerned, in the period immediately before retirement these represented a statistically insignificant proportion of total time use, whilst after retirement they became non-existent. The curve

[28] ATUS (2004).

representing time spent in learning reaches its peak in the 16-24 age range and falls sharply thereafter. This aspect highlights the tremendous effort that will be needed to change habits and practices in order to achieve the proposed increase in lifelong learning, and particularly so in the case of elderly workers (OECD, 2005; CE, 2005).

The almost total lack of extended families in European countries and the United States is made clearly evident by the lack of care provided between generations (for example, from grandparents to grandchildren, assuming that, in the cases of people aged over 60/65 – depending on the retirement age of each country – children will, generally speaking, be grandchildren and not sons or daughters). The time spent by retired persons in the *physical care of children*, *teaching or playing with children* and *other childcare* is near nil in all the European countries analyzed, except for Slovenia, Hungary and France.

Volunteer work (which includes *organizational work* and *informal help*) shows a decrease in all countries, except for Sweden and Norway.

Table 5 shows the Female to male ratio for the *leisure activity* and *volunteer work* decreases after age 64 in almost all activities with some exceptions by country.Being alone or not is one aspect, which affects individual well-being. Social contact could be measured by the identification of the location where the activities occur. The location in which the activities take place constitutes a proxy for the established social contacts. The fact that a given activity takes place at home increases the probability that it will be carried out either in solitude, or only in the company of other family members.

Table 6.1. and *Table 6.2.* show the results for men and women. The percentage of time spent at home increases in all countries between 10 and 20 %.

As in the United States, the re-allocation of available time after retirement is different for men and women. In the case of men, the increase in time spent doing

housework is greater than it is for women. As far as Slovenia, Hungary and France are concerned, the time spent by women doing housework falls by roughly 20 to 30 minutes each day. As a result of these differences, the gender gap becomes narrower, a trend that was in fact noted in previous studies. These results are, however, to be explained in part by the composition of the family after retirement, as will be analyzed later on.

4.1.2. Activities of Retired and non Retired Old People (MTUS data)

In the group of eleven countries considered here and for the periods shown in *Appendix 1*, the population aged over 54 corresponds to roughly 23% of the sample, whilst individuals aged over 65 amount to only 7%. In the total of the sample as a whole, roughly 12.7% of respondents were retired.

The category of retired persons is not considered in the same way in all European countries: in some cases, it is a question of self-classification, and in other countries it is determined indirectly when respondents state that they are receiving a retirement pension (MTUS, 2005). The differences in the share of retired people by sex, reflect the female and male activity rates in the different countries. In the sample by countries, the number of retired persons is higher than 1000.[29]

The variables considered in relation to well-being, also labeled on the present study as "pleasurable activities" are: active leisure, passive leisure, socialization and child care. The activities considered on the data source were aggregated in other categories: *personal care, leisure without TV, TV leisure, educational activities, childcare and personal time with medical care*. (*Table 7.1* and *7.2*)

Educational activities (formal) and *childcare* occupy little time in the time allocation of the elderly, but they are included in the study as dependent variables because they could represent the well-being transmission between generations and

[29] One exception is the case of South Africa, which is therefore removed from the data when the non-parametric analysis is carried out.

reflect the actual life-long-learning (a political goal for EU) characteristics of this segment of population.

Medical care was included as a *proxy* for health status. Health in general and physical and mental health in late stages of life strongly determine well-being directly and also indirectly. However, because of the lack of information, it was not possible to ascertain the situation regarding the health of each individual.[30] This is clearly something that restricts the group of activities carried out and, in the more serious cases, may be the fundamental reason for retirement before the average or legally imposed age. Although there is a question in the MTUS relating to the extent and seriousness of existing incapacity, the data are not comparable among countries (Fisher, 2004).[31]

In the universe of retired persons, it can be seen that the number of sick or incapacitated people increases with age. In the case of those aged over 80, roughly 100% of individuals are incapacitated in some way. [32]

It should be noted that, as has been concluded in other studies using different methodologies, the actual retirement age is systematically lower than the legal retirement age,[33]even when this does not have any compulsory nature. The retirement ages and social security systems in the different countries and years analyzed are summarized by OECD (2005).

The analysis by family type that is carried out later on allows for a contemplation of the results when only the individual is considered. However, the category of *couple without children* used in many surveys does not allow for any distinction (when the micro data are not accessible, as in the case of the HETUS) between young couples and elderly couples, who have very distinctive patterns of economic behavior and lifestyles.

[30] One exception is ECHP where there are several questions (objective and subjective) related with health status of the respondent.
[31] This question also had a very high number of missing answers.
[32] It could be discussed if, in order to offset any possible bias in the results through the inclusion of the behavior patterns of individuals with serious physical or mental limitations, all individuals aged over 80 should be removed from the sample, and because they represent less than 1% of respondents.
[33] The announcement of the raising of the age of retirement has led to an increase in the number of early retirements in some countries. This particular aspect of behaviour based on expectations was not incorporated into this analysis. It is an interesting topic for future analysis.

The life cycle categories proposed by Apps (2005) help to partially solve this data shortcoming.

The data analyzed correspond to the average score for every day of the week, which leads to a bias in the comparison between retired and non-retired persons, for the latter display different behavior patterns between weekends and other days (Bittman, 2003).

Based on MTUS data for 11 countries, the sample was divided into two groups according to the respondents' situation regarding retirement, so that there were then two sub-samples for each age interval: one for retired persons and another for non-retired persons. Time allocation was compared for people who were of the same group age but had a different situation in relation to the labor market.[34] Furthermore, because the pattern of time use between men and women was different for the same employment status and age, the analysis was also carried out by gender.

The patterns of both time use throughout the life-cycle and investment in human capital are identical for the different countries, with the highest scores for work time being recorded in the United States and the lowest ages for entering the labor market being found in Southern European and less developed countries. The study of time allocation through the life span frequently is done only for male pattern of time use since the period of fertility makes the pattern of entering/leaving the labor market for women less regular and less easy to standardize in terms of age. However, the *Tables 7.1. and 7.2* presented here, are in aggregated terms.

The comparison of time allocation before and after retirement was undertaken in the case of the countries included in the MTUS by ages and in the case of the 11 countries included in the Eurostat survey by age groups. Four age groups were considered: young active workers, middle-aged workers, elderly workers or those in a state of pre-

[34] The category of inactivity is not relevant for the present study, because the goal is related with the situation before and after retirement. Our focus in on individuals which had cross the frontier between market work and market work inactivity. When retirement status information is not included some studies overcome that problem of missing information considering only the old male. In an international comparison, because total, male and female participation rate varies across countries, adopting that approach for retirement status is not appropriate.

retirement, and retired persons. For the remaining inactive population and for the unemployed, the age groups are identical. [35]

Comparison between the age group immediately before retirement and that of retired persons (note that the retirement age is different for each of the countries) shows the following changes, which will be analyzed firstly with regard to the main groups of activities and then in a more detailed form and by gender.

The transition from active involvement in the labor market to retirement gives rise to very significant alterations in time allocation. The time that was previously taken up with paid activity and transport to and from work – the *contracted time* according to the classification of Aas (1972) and Petrushev (1968). [36]

Personal time increased in an identical manner in all countries, rising by between one hour and one and a half hours, with housework (in different ways for men and women) and leisure time also increasing, and, in particular, passive leisure activities such as *watching TV and video*, which increased by between one and two hours. In the case of the United States, the current situation (BLS, 2004 and 2005) is not very different from the one previously analyzed in the 1980s and 1990s (see for example Hill, 1985, and Robinson and Godbey, 1999). However, the definition of "retired" is different in the case of the United States, so that it was decided to display this country in a separate table; for a definition of "retired", see BLS (2005: 6) and CPS definitions.

On average, retired persons spend 7.3 hours per day in *leisure and sport* (7.77 hours in the case of men and 6.96 hours in the case of women). The largest proportion of such leisure, roughly 80%, corresponds to *watching television*. In the United States, where time use surveys have been carried out for several decades, the activity of watching

[35] These Results not presented in this paper.
[36] An identical classification was adopted by both authors and later tested by the BLS according to Stewart (2005)) – began to be distributed amongst other activities, thereby leading to increases in "committed time", "personal time" and "free time". A discussion of the different classifications of activities and their suitability in terms of data and research objectives is need but not presented here..

television – as the main activity. It must be pointed out that time use surveys inquire about the main activity and, in some cases, also about the secondary activity, or, in other words, the activity that is undertaken at the same time as the primary activity has been progressively gaining ground in detriment to other leisure activities, such as reading newspapers or magazines.

To summarize the analysis by countries:

- after retirement individuals spend more time on average satisfying their basic needs, such as eating, preparing meals and sleeping, whilst simultaneously significantly reducing the time spent traveling on transport and walking more.

- as far as socialization and the construction of social capital are concerned, individuals are more isolated both from their family and from other members of society. In this phase, increasing importance is given to remote forms of communication.

- the enormous growth in *leisure time* after retirement is fundamentally spent in passive leisure activities, and in particular in *watching television*.

The main aspects that have been highlighted are to be found in both Europe and the United States, with the result that in relation to some of the new members of the EU the data suggest that, after retirement, this type of activity (child and family care) remains more closely connected to the family and to family support, namely to providing intergenerational support. This fact may also be linked to the differences in the demographic and family structure of these countries, as well as the lack of, or difficulty in gaining, access to family support structures.

4.2. Transition process and panel data- Following the same elderly individual from labor work to retirement, results based on ECHP (8 waves)[37]

As a variable predicting behavior patterns and attitudes, and therefore also time allocation, age presents a number of limitations, having been considered a "false" variable in time use surveys carried out during the 1960s and 1970s, as was stressed by Robinson and Godbey (1999: 202). In fact, this variable was found to be closely linked to other variables, such as the educational level, health and income of individuals.

In most of the countries studied, the age group representing the elderly (those over 65) is the one displaying the lowest levels of income and education, whilst also being the one in which retired people are most heavily concentrated. In those countries where the age group of senior citizens is more diverse in terms of education and health (such dispersion is assessed through the standard deviation), age loses some of these qualities, with the variables of education and income becoming more predominant, as is the case with Finland.

Besides its association with other variables, age is also seen to be linked to age-cohort effects, combining these with life-course effects, in which people with the same age at a given moment have either had or passed through similar life experiences (Gershuny, 2000: 189). In this way, it is difficult to separate the age effect or vintage effect (Hill 1985: 154), as well as the ageing effect, from the effects of historical changes, namely with regard to the standard of living and well-being and the individual's social and family role (Roberts, 1999: 112).

One way of separating the age effect from other effects that are associated with it is to work with panel data, in which the same individual is surveyed on several occasions

[37] ECHP micro data for all the European participant countries does not exist at the Portuguese Statistical Office (INE Instituto Nacional de Estatística). The author thanks Portuguese Statistical Office (INE) for the access to ECHP micro data for Portugal, under a protocol between INE and CISEP – Centro de Investigação sobre Economia Portuguesa, ISEG-Technical University of Lisbon.

over time. Such an analysis is, however, only possible in the case of Portugal, due to a lack of information at the moment for other countries.

Using panel data from the European Community Household Panel, eight waves with constant composition, period 1994 until 2001, is possible to analyze for the *same* individual, the well-being aspects, before and after the retirement date. This methodology is exemplified for one country included on ECHP. [38]

Firstly, for each of the eight years of the panel a sub sample of individuals is selected based on employment status transition: all the individuals who are in the labor market in year *t* and declared retired in years *t+1* are considered.

Secondly, for some aspects associated with well-being, the situation before and after retirement is analyzed. Those aspects are: income level and composition, auto perceived satisfaction with health, social contacts and care activity frequency. [39] The *Table 8* and *10* summarizes for each year the before and after retirement characteristics for those who declared to be employed at year *t* and retired at *t+1*. The total number of reported transitions and individuals considering the 8 years is 413.

In general the individual situation becomes worst after retirement in multiple domains: satisfaction with health and financial situation are the most relevant.[40] There is a slight increase in care activities of children (probably grand child).

Note that the average age at the moment transition has values, which are similar with others obtained by different methodologies (OECD 2005).

4.3. Multivariate analysis by groups *(to be included)*

[38] ECHP micro data for all the European participant countries does not exist at the Portuguese Statistical Office (INE Instituto Nacional de Estatística). The author thanks Portuguese Statistical Office (INE) for the access to ECHP micro data for Portugal, under a protocol between INE and CISEP – Centro de Investigação sobre Economia Portuguesa, ISEG-Technical University of Lisbon.

[39] The ECHP variables and questions related with well-being are summarized on Appendix XX

[40] The tentative to calculi a replacement rate did not result, because answer about the income have disparate data. See for example the strande data in OECD tables (more than 100 for Portugal and Turkey). OECD (2005)

4.4. Models of Transfers and Survey Results

4.4.1 Private transfers and well being – international comparison

Empirical strategy of estimation

As outlined by Cox (1987) and followed by posterior analysis[41], the transfer decision for analytical proposes must be separated in two stages: the decision of make a transfer or not and, if to be made, the decision about transfer amount.[42] This separate and sequential approach is adopted in the present paper estimating first Probit models for the decision of participate or not in time transfer activities and after a Tobit models for the amount of transfers. [43]

Table 10 – Summary of predictions based on theory and empirical studies

Independent Variable Intergenerational Transfer of Well-being (time)	Signs[44]	Studies/date/datasource	Obs.
Income			
Age			
Employment Status			
Independent Variable: Intergenerational Amount Transfer (time)			
Income			
Age			
Employment Status			

[41] Some of that studies listed on this paper (Section 1, Table 2).
[42] (Cox 1987: 518).
[43] Only time transfer were considered at this stage of the research. SHARE database is the only considered base which allows the estimation also for financial transfers. (See *Appendix 3* – Questions related with transfers and altruism).
[44] As the estimated associations are non linear signs must be interpreted carefully.

Based on theory and empirical studies a brief summary of predictions about intergenerational transfers can be constructed. (Table 10). The models tested consider when data are available the explanatory variables identified by that authors. A brief statistical description of all the variables used is presented in *Annex 3* and the survey questions which are associated with some of those variables are shown in *Annex 4*.

The countries and years considered for the estimation are: US (2003), South Africa (2000), Slovenia (2000), Canada (1998), France (1998), UK (1995), Netherlands (1995), Germany (1992), Austria (1992), Norway (1990) and Italy (1989).

The justification of the selection of each variable is presented below.

Dependent Variables:[45]

Existence of time transfers :

The main source considered was time use data. For ten countries the intergenerational transfer studied are from adults to children. Additionally, for the US case the existence of transfers was associated to time spend on care activities to children (infant or adult) and care activities to elderly. The participation (dichotomy variable and time use values) on time care of children as a secondary activity. The secondary activity is considered for the total amount, weighted by 0.5

Independent variables

Income

The income[46] of the donor (person or household) and the income of the receiver are crucial information for the testing of transfer models in particular in what concern the elasticity for different levels of income. MTUS has two income measures, the original for each country and another which is grouped into the 25% lowest, the 50% middle and the highest 25% incomes. ATUS 2003 includes the income of the donor, measured by two ways: 16 levels of income intervals and by quartiles. Permanent

[45] See also *Appendix 3* – Variable Descriptions and construction. An *Appendix 4* .
[46] Or alternatively, the well-being as proxy for the utility of each agent participating on the transfer.

income, a more suitable measure of income for this research proposes, only can be computed with panel data.[47]

Intergenerational Household

This variable, as far as we know was not specifically considered in the previous empirical studies. The identification of intergenerational household families is presented in Table 2 of Appendix 1. The family or household categories are frequently included in the models. It was assumed that intergenerational transfers are more likely to occur in intergenerational households.[48] For MTUS 10 countries and ATUS-2003 intergenerational households were identified combining the information of household categories with the information of household size.

Household size

Household size influences the existence and amount of time transfers, because members of the household could share the care needs of the other members. The size could be measured in multiple perspectives. For example: number of adults, number of dependent children or elderly, OECD equivalent scale[49], number of labor force members.

Wealth

The models of bequest transfers differ from the *inter vivo* transfers but share some motivations for transfer. The income and the wealth are restrictions to the financial transfers. However, wealth is very difficult to evaluate.[50] For the US case, the existence of own home was considered a *proxy* to wealth.[51] This aspect is particular important for elderly people. For example poverty measures computed in UK include

[47] An attempt was made by the author to compute permanent income but the obtained results were of low quality and disparate.
[48] The data of time use, usually include information about transfers without specifying to whom the time help or attention is done. Some time use surveys also include transfer received and given between families, as is the case of Portuguese TUS (INE,1999).
[49] ECHP includes several measures of householde size. OECD equivalent scale and OECD correct equivalent scale are computed.
[50] Many authors call the attention for the difficulty of evaluating wealth an the bias results on well-being and inequality measures Wollf, E. (200X)
[51] ESPE Conference communication about this (June 2006).

before and after payment of rents, because rents have high weight in total budget of old people (Förster and Ercole, 2005).

Education

The transmission of time, in particular to children directly or indirectly related with learning activities contributes to growing human capital for the next generation. It is expected that an increase in the educational level of the donor, also increase the participation and amount of parental, grandparental or similar time because those individual are more aware of the importance of human capital formation.

Employment status

The situation in relation to the labor market influences the transfers of time at least in two aspects: the employed person probably has more money[52] and less free time available to give. Working (part or full time) and duration, in time units, influences time transfers. The study of the transition from work to retirement must focus on this aspect.

Age

The relation between age and the potential activity as a giver or a receiver as many researches show is not linear. The patterns during the life cycle concerning income or saving investments for example differ and the same happens with private transfers *inter vivos*. This aspect together with employment status is stress in this present research.

Health Status

Good health status of the donor influences positively the donations in time. Poor health status of the receiver increases the amount need of care and help time.

[52] If wealth and other incomes than wages are ignored

Female

The motherhood and grand motherhood as well as widow's female bias contributes, between other factors (e.g. cultural and legal aspects), for the higher participation and levels of transfers of time to descendents, ascendants and spouses.

Race and ethnicity

Particularities associated with race and ethnicity, namely demographic characteristics and cultural aspects could influence the private transfers in time and money.

Geographical distance between giver and receiver

It is considered that the physical proximity, and at an extreme the co-residence increase the transfers. However, there is very little information on this.

From parents and grand parents to children (Private inter vivos time transfers)

Probit models

The predictors for the participation in money transfers are estimated for ten countries[53] and the main estimations are presented in *Table 11*. For the US, because the available information is different, the estimation is made in separately and the main results are presented on *Table 12.* The dependent and independent variables are different depending of the data sources.[54]

The predictors that are associated positively with the intergenerational transfer for all the five countries considered (Canada, France, Italy, Slovenia and US) are: being female (*female_YN*), educational level (*edu*) , children under 18 years old living at home (*nchildren18_YN*). For the US being owner of the habitation (*ownhome_YN*) has a also a positive association. The predictors associated negatively in all countries estimates are: participating in the labor market (*paid_YN* or *empstat_YN*). The results for other

[53] This paper version (July 3) only present results for five countries.
[54] See Appendix 1 and XX

variables differ among countries considered or, for the same country, depending on the model considered.

Being retired (*retired_YN*) exhibits more often a positive association and the income level (*incomeG* or *incomeqt*) a negative association. Household size (*hhlsize* or *nadults*) shows mixed effects. It must be pointed out that the comparison across the countries must be done very carefully, because the concepts, categories and codes classification differ in the Time Use Surveys.[55]

The values of the coefficients in the case of Probit model, could not be interpreted as the OLS coefficients. In the case of the Probit model the relevant information obtained indirectly from the coefficients are the marginal effects. Table 13 shows the marginal effects of each of the predictors in the case of Model 1 for Canada[56]. The value about 12 for *female_YN* means that being a female increase the probability of give child care by about 13% per day. And being retired (*retired_YN*) decrease that probability by about 13% also (see Table 13).[57] [58]

The results converge to what is expected according the theory, which admits divergent results associated with income. It must however be noted that the theories explaning the inter vivo transfers include both incomes: the donor income and the receiver income. Because of lack of data about the income of the reciver I assume that the receiver if less than 18 years old has no receipts.

From parents and grand parents to children (Private inter vivos amount of time transfers) Tobit models

The Tobit censored[59] estimates are not very strong. The pseudo R squared is respectively 0,0341 and 0,0568 for US and France (Table 14). The coefficient values for

[55] Documentation related with MTUS call the attention for this important aspect.
[56] All other marginal effects data available (STATA format) under request from the author.
[57] The values obtained assume that the other predictors are equal to each mean value. The researcher could modify this assumptions.
[58] The coincidence of the two values (13%) is only a coincidence. Any kind of trade off is einvolved.
[59] Left censored at zero.

the variable female (*female Y_N*) for US and France are similar[60]. It must be pointed out that they are obtained from databases with different structures and dates (USA from ATUS 2003 and France TUS-MTUS 1998). The value around 87 is interpreted as follows[61]: the partial effect evaluated at the sample mean values of the other values of independent variables represents that being female is estimated to increase expected time care by about 39, 2 minutes per day.

Table 11 – Probit Model of the Time Transfers– 10 Countries (Dependent Variable : Transfer in Time Yes=1 No=0[62])

Independent Variables	Canada (1998) Mod.1 N=7,260	Canada (1998) Mod.2 N=7,260	France (1998) N=14,961	Slovenia (2000) Mod.1 N=9,970	Slovenia (2000) Mod.2 N=9,970	Italy (1989) N=37,764
female_YN	.5338767 (.0402527)	.5393032 (.0468725)	.7253154 (.0290711)	.4692495 (.0354316)	.4690718 (.0354273)	.5932934 (.0194696)
hhlsize_m	.5502686 (.0167912)	.0992057 (.0238657)	b)	-.0069787 (.0145638)	c)	-.0712917 (.0084269)
married_YN	-.410838 (.0462359)	-.3692512 (.0581994)	-.7440039 (.033283)	-.8555057 (.0404523)	-.8559736 (.0404397)	-1.067584 (.0215901)
retired_YN	-.6378046 (.0859495)	.1467747 (.0941994)	.1896064 (.0449892)	.1137568 (.0483063)	.1153944 (.0481738)	.1328023 (.0353797)
incomeG_m	-.2677695 (.0284434)	-.2191482 (.0332086)	-.193061 (.0238211)	-.1391062 (.0294536)	-.1437084 (.027848)	d)
educ_cat	.2398383 (.0257466)	.2304561 (.0293426)	.1985163 (.0214072)	.2998861 (.0266301)	.3025986 (.0260195)	.3235762 (.0167112)
paid_YN	-.0890651 (.0403042)	-.1437103 .0471582	-.1752591 (.0307417)	-.1894638 (.0378484)	-.1892339 (.0378396)	-.0478516 (.0218408)
nchild18_YN	a)	2.17268 (.0668061)	1.488617 (.0354524)	1.238602 (.0461484)	1.228584 (.0410964)	1.339579 (.0253707)
constant	-2.447369 (.10176)	-2.492514 (.125143)	-1.867047 (.0687576)	-1.834097 (.0843445)	-1.85029 (.077278)	-1.982673 (.0446984)
Pseudo *R*-squared	0.2898	0.4711	0.2694	0.2292	0.2292	0.2780
Log-Likelihood Value	-2813.6517	-2095.6329	-5437.1078	-3415.4456	-3415.5606	-12305.155
Percent Correctly Predict	81.82%	86.91%	85.38%	85.08%	85.10%	85.85%

Author computations . Models tested output (Stata format) available upon request. Data base: MTUS microdata base.
Note: Standard errors in parentheses below the estimates. a) Not included; b) Tested and excluded; c) Excluded from Model 1 because
P>z, [95% Conf.Interval]= 0.632; d) Income quartile data not available for Italy.

[60] The value from a study , where dependent variable of Tobit model is also amount of time for the US (PSID supplement data 1988)is equal to 89,617 with a t-statistic of 1,88 (Schoeni, 1997: Table 6 last 2 columns). But the coefficients are not comparable because are reposted as "annual time received from parents non co-residents"

[61] Note: interpretation of the Tobit censored coefficient to be confirmed with other econometric tests instead of the application of rule of thumb (beta plus 0,451) from Wooldridge (2003:571). And also confronted with data.

[62] Variable name kidcare_YN

Table 12 – Probit Model of the transfers Main results – US 2003

(Dependent Variable: Transfer in time, *totcare_1st2nd_YN,* Yes=1 No=0)

Independent Variables	**US (2003) Mod.1 N=10,585**	**US (2003) Mod.2 N=10,585**
female_YN	.3364503 (.0194983)	1553055 (.0273489)
ownhome_YN	.1563169 (.0236763)	.2993044 (.0403761)
married_YN	.7004325 (.0220329)	
empstat_YN	-.1583424 (.0228118)	-.3224144 (.0344427)
age	-.0324549 (.0007082)	-.0470648 (.0011895)
nadult	-.1821255 (.0127601)	-.1870979 (.0209119)
empsp_YN		-.06641 (.0322961)
edu		.0121341 (.0117328)
incomeqt_m~s		.0117952 (.0159917)
nadult		
constant	1.23426 (.0524253)	2.688045 (.097853)
Pseudo *R*-squared	0.1344	0.1537
Log-Likelihood Value	-11796.503	-6073.0353
Percent Correctly Predict	68.31%	71.72%

Author computations . Models tested output (Stata format) available upon request. Data base: ATUS 2003

Table 13 - Marginal effects after probit
Canada Model 1

variable	dy/dx	Std. Err.	z	P>z	[95% C.I.]		X
Female~N*	**.126922**	.00933	13.61	0.000	.108639	.145205	.526446
hhlsiz~m .	1326544	.00423	31.37	0.000	.124366	.140943	2.58375
Marrie~N*	-.0952288	.01015	-9.38	0.000	-.115121	-.075337	.405234
Retire~N*	**-.1200518**	.01173	-10.24	0.000	-.143039	-.097065	.141185
Income~m	-.0645518	.00687	-9.40	0.000	-.078015	-.051088	1.95179
Educ_cat	.0578183	.00622	9.30	0.000	.045637	.07	2.35496
PAID_YN*	-.021477	.00973	-2.21	0.027	-.040553	-.002401	.50303

(*) "dy/dx is for discrete change of dummy variable from 0 to 1"
Author computations . Marginal effects for all the models estimated , output (Stata format) available upon request from the author.
Data base: Canada Time Use survey 1998 as available on MTUS.

Table 14 – Tobit Model of the transfers
(Dependent Variable : Amount of transfer in time children care *time child*)

Independent Variables	US (2003) N=11,914 a)	France (1998) N=14,961 b)	Slovenia (2000) N=9,970	Italy (1989) N=37,764
female_YN	87.74113 (4.598347)	86.3896 (3.405487)		
hhlsize_m		25.35501 (1.30648)		
married_YN		-110.3765 (4.254315)		
age	-8.596077 (.1584792)	-1.790888 (.1177152)		
incomeG_m		-23.62425 (2.75048)		
educ_cat		22.56024 (2.479146)		
paid_YN		-31.00096 (3.365978)		
nchild18_YN				
empstat_YN	-51.99879 (5.199688)			
constant	380.6688 (9.696616)	-119.0458 (11.50872)		
Pseudo *R*-squared	0.0341	0.0568		
Log-Likelihood Value	-50995.512	-22172.192		
$\hat{\sigma}$	248.0922	129.35		

Author computations . Models tested output (Stata format) available upon request. Data base: ATUS 2003 for US and MTUS microdata base for other countries.
Notes: a) 9966 left-censored observations at *totcare1st502*<=0, 9697 uncensored observations,0 right-censored observations ; b)12001 left-censored observations at *time child* <=0, 2960 uncensored observations, 0 right-censored observations
Author computations. Models tested output (Stata format) available upon request. Data base: MTUS microdata

4.4.2. Portrait of an Altruist

The altruistic models of transfers assume different types of altruistic behavior. The concepts of altruism are discussed in the economic literature and from other behavior sciences. The ECHP includes one question the answer of which, in our opinion, could be used to identify, at least as a proxy, the altruistic behavior. The question is:

> *"Does looking after children or other persons [who need special help because of old age, illness or disability] prevent you from undertaking the amount or kind of paid work which you otherwise would do?"*[63]

In each wave about 330 individuals answered affirmatively to that question in the in the Portuguese ECHP questionnaire. In order to illustrate the potentialities of that data [64] a brief characterization of the altruist is made using data from the two last waves. When there was repeated individual in both waves answering 'yes' to the above question, the older observation was dropped and the more recent one was kept.

Table 15 - Characteristics of the Altruistic Person

(N= 501 obs. ; ECHP 2000 and 2001)

Characteristics	% in total (100=501)
Female	98
Married	79
28+Hours per week taking care of children	54
28+Hours per week taking care of other person than a children	26
Receive private transfers	3
Looking after children	62
Looking after other person of who needs help because old age, disability or illness.	28
Looking after both children and other person	11
Self Declared Satisfaction	
Satisfaction with	**(min=1, max=6)**
main activity or work	3,09
financial situation	2,55
amount of leisure time	3,55

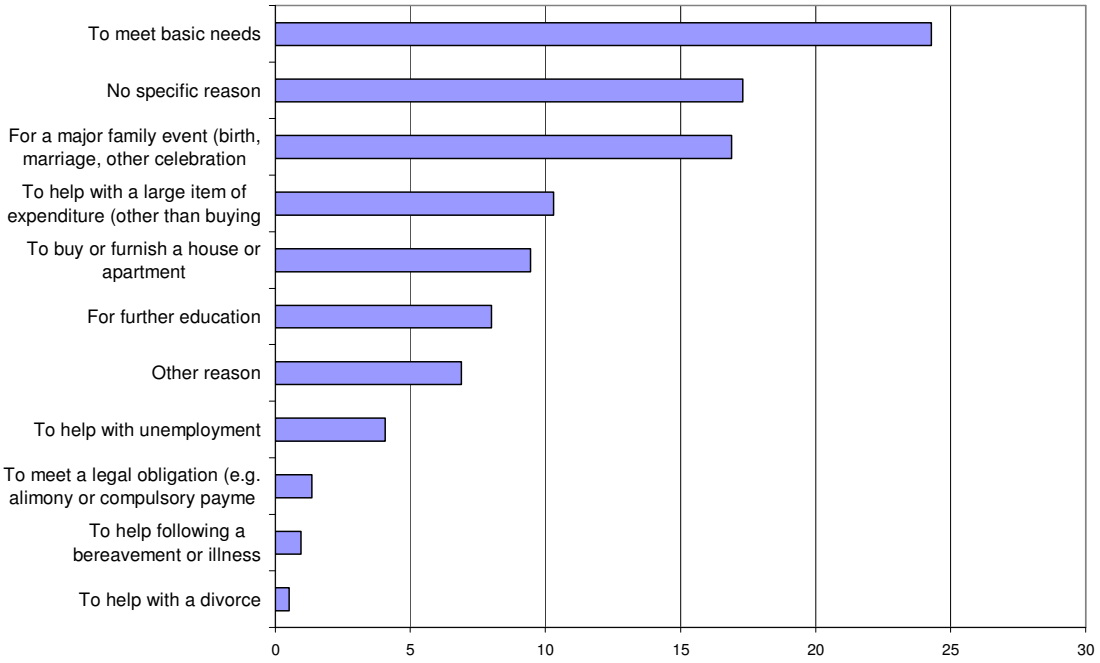
Author computations based on 2001 and 2000 data from Portuguese ECHP microdata.

[63] ECHP UDB Description of the Variables, p.395.
[64] *To be completed on final paper version.*

This particular type of altruistic person is primarily female, married, looks after children and elderly and in some cases both. The satisfaction perception, in particular about financial situation is weak.[65]

The direct results obtained from SHARE database give information about the motivations for private transfers (*Figure 1*). The necessity (basic need) of the receptor is the main motivation. The answers which stated 'non specific reasons' for giving (from donors) and receiving (from receivers) represent about 20% of the total (Figure 2). Eventually, they hide strategic behaviors stressed on transfer models or the 'warm glow' attitudes

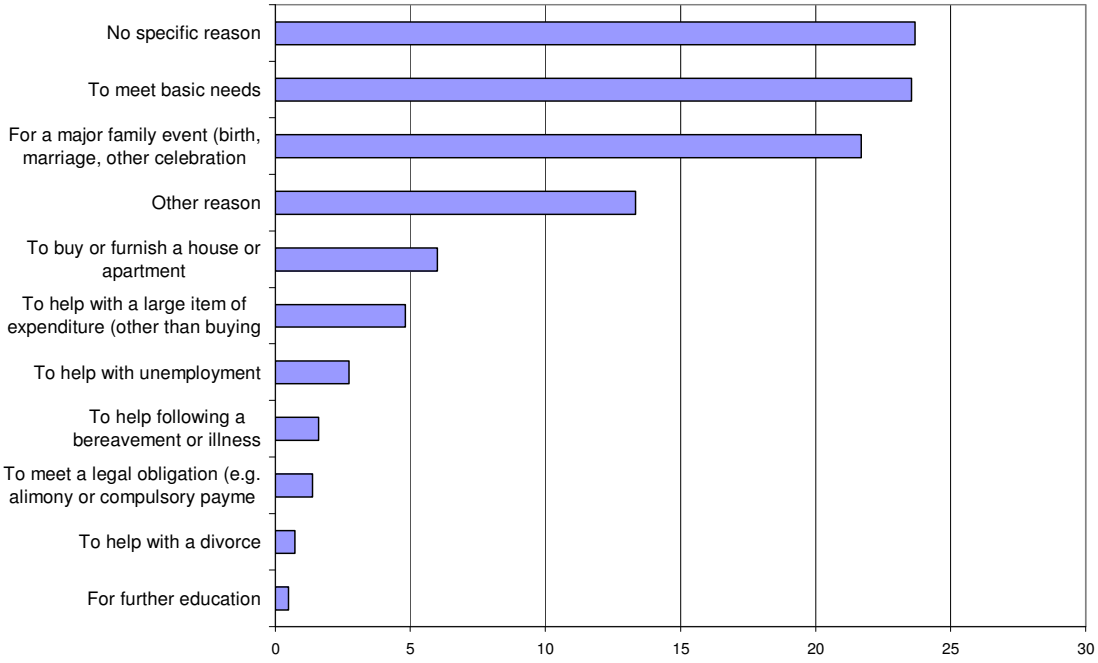
Figure 1 – Money Private Transfers -Reasons for Given



Author graph from microdata source SHARE (2004; N=22,777; weighted data)

[65] The author plan to study this group with altruistic behavior adopting a matching process for creating a control group for this one.

Figure 2 – Money Private Transfers -Reasons for Receive



Author graph from microdata source SHARE (2004, r1; N= 22,777; weighted data)

5. CONCLUSIONS AND FUTURE AVENUES OF RESEARCH

The results shed some light on the effects on well-being of retirement status and the potential consequences for different countries of the raising of the retirement age for the target group and the associated household. Transfers of time and money between family members were evaluated.

Conclusions related to empirical evidence of theory as follows:

-The time use data represents an original data source of transfers between and within households, particularly time and in-kind transfers; also an original source for well-being evaluation.

-The prediction of transfers in money and time, both for donors and receivers were estimated separately. No clear empirical evidence was found concerning the influence of age, but employment status and in particular retirement status are good predictors. The results for the sign of some estimates are inconclusive

- When income and donations in the form of time are considered together, there is a negative relation between the 2 variables. However, if they are considered by quantile income scales, the relation between income and time transfers shows evidence of a non-linear behavior. This relation is generally U-shaped, in which the first and last income quartile display the highest time transfer values between generations. Considering the sub-population of the retired, the *inter-vivo* transfers in time (time caring for the elderly, for example a spouse, or caring for children, for example grandchildren) present a strongly negative relation between time donated and income. In other words, "non-retired donors give money relative to time and retired people give more time, because has more available (free) time. In general when the income (of the donor, because the income of receiver is unknown) is lower and she/he gives more time and when the income is higher gives less time.

- The results suggest that those who consider themselves to be in a positive situation in terms of well-being (from both a subjective self- perception perspective and an objective economic perspective) are more likely to act as donors. One explanation for the low percentage of retired people as donors could be related with this situation.

-The private transfers received in money are positively related with the needs of the receiver and represent complements to other income sources, when the analysis is by family types. As the income increases and concomitantly needs decrease, the transfers tend to decrease considering the household as a unit. If the analysis is conducted not for the household as an aggregate, but for the individuals, the results are inconclusive.

- For the retired people, and according to the 'replacement rate' and 'quasi replacement rate'as defined by OECD the decrease of income is accompanied by an increase in leisure and pleasant activities.

- The altruistic model was not tested in all aspects because of the lack of data. However, the results for altruistic behavior show that there is a specialization among the family members which seems to be unrelated to comparative advantages. The altruistic behavior is related to some specialization among the family members but no 'comparative advantage' of the members was found. The opportunity cost of altruistic members (more than 90 females) of the household (the altruistic behavior was evaluated by the responses to the question dealing with looking after children or other persons – preventing the donor from undertaking the amount or kind of paid work which the donor would otherwise undertake) is generally as high as the wage of the other members of the family who participate in the labor market.

- The present research shows that some of the data sources available could be used for the empirical testing of certain assumptions related to intergenerational behavior. Note that the results presented in relation to one country (ECHP-Portugal) could easily be replicated for 14 other European countries for the same eight waves, such a replication depending on the access to the micro data of those countries. The methodologies presented could be applied to other data sources.

- The household categories in official statistics are generally organized in such a way as to make it difficult or even prevent more thorough research into private transfers. Moreover, it is not updated in terms of the new/evolving patterns of household arrangements. Recent demographic trends in families (e.g. increasing divorce, decrease of family size, the delay of adult children in leaving the nest)

- The majority of the categories of households are focused on the existence or non-existence of children and alternatively, do not consider the presence or non-presence of elderly members.

-Cultural and institutional cross country aspects seem to have more influence on labor market characteristics and behavior of employed than on the behavior of retirees after the transition for retirement.

-The influence of family context and income on well-being is not empirically shown for all the countries. At the late stage of life, intergenerational support care are not very frequent when evaluated by time allocation.

-The data obtained on time use are a valuable aid for assessing the well-being of individuals and societies however, the information about elderly and retirees is difficult to compare among countries as a result of different concepts adopted and also because the upper extremes of age intervals vary across surveys. A better statistical coverage of elderly people is recommended when that is a growing part of the population. In order to be used in a suitable form in the study of well-being, time use data must be associated with subjective questions about the perception of well-being that accompanies the activities undertaken.

-The model for the allocation of wealth and income over the life-course, formulated by Becker and others is mirrored by time allocation along the life span.

- Despite the diversity of models for social security and retirement age and levels of development, the elderly population displays very similar patterns in the different countries (except for a sub-group of European countries) as far as time use is concerned. Most leisure time after retirement is taken up in a similar way in all countries. The well-being associated with leisure may only be fully assessed if data are included that relate to the perception of well-being and to the quality of the most common practices.

Some Shortcomings and limitations

This paper has several shortcomings and limitations, which the author intends to overcome in a future improved version.

Some of the shortcomings and limitations already identified are:

- the *comparability* between countries using time use data is to be looked/should be carefully reviewed, because the methods, categories, samples and variables intervals differ for each time use survey. They also differ for the same country across the time. This problem is not specific to time use data;

- the *information on income* is available from MTUS in 2 formats : the original income categories of income in each country survey and the harmonized intervals computed by the MTUS Project. In the paper, in general, only the second classification was used. It is difficult to carry out a more detailed analysis by family/household type in each country using this option. For example, there is no possibility of an accurate, or even approximate, measure of income *per capita*

-not all of the data refers to the *same period* of time. We have endeavored to choose the most recent data for every country (see Appendix 1, Table 1);

- *the status of retired* is considered in some countries as self-declared, while in others it is established by the crossing of sources. We excluded from the sample all those who, although retired, declared that they were engaged in some of paid working time. This is a very frequent occurrence in many countries (namely on US). One common explanation is that after retiring, the individuals initiate their own small businesses;

- with the exception of one source, we had no detailed data on the *receivers* of time transfers (in particular, the income level of receivers);

- the *categories of households* considered in the majority of the inquiries are not adequate/appropriate for this type of study on intergenerational families. The basis of classification is essentially whether there are, or are not, children present in the family. With the exception of the ECHP, there is no database that takes into account the presence, or non-presence, of elderly individuals in the family. The increasing importance of this demographic group in most of the developed countries signifies that

an alteration of the classification of the family is strongly advisable. (Footnote: the alteration should also be extended to include other types of reconstructed families, as well as those which could be described as ‘non-classic’, which are not yet represented in the databases with sufficient statistical weight .

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[66] (to be included)

MICRODATA BASES

AHTUS
American Heritage Time Use Study, release 1 (May 2006). Created at the Centre for Time Use Research, United Kingdom, by Kimberly Fisher, Muriel Egerton and Jonathan Gershuny, with Nuno Torres and Andreas Pollmann, and contributions from Anne H. Gauthier and John Robinson. Created for Yale University with initial funding from the Glaser Progress Foundation and supplementary funding from the ESRC

IOT

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Instituto Nacional de Estatística (INE)

IRDF
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MTUS

Multinational Time Use Study, Version 5.5.2 (released 14 October 2005). Created by Jonathan Gershuny, Kimberly Fisher and Anne H. Gauthier, with Alyssa Borkosky, Anita Bortnik, Donna Dosman, Cara Fedick, Tyler Frederick, Sally Jones, Tingting Lu, Fiona Lui, Leslie MacRae, Berenice Monna, Monica Pauls, Cori Pawlak, Nuno Torres and Charlemaigne Victorino. ISER, University of Essex, Colchester, UK.
[http://www.timeuse.org/mtus/]

SHARE
Survey on Health, Aging and Retirement in Europe

[http://www.share-project.org]

Acknowledges and Disclaimers related with the micro databases used in the present paper:

AHTUS - American Heritage

"Conclusions in this research are those drawn by the authors, and may not reflect the views of the creators or funders of AHTUS or the collectors of the original surveys harmonised in this dataset."

ECHP - The author thanks Portuguese Statistical Office (INE) for the access to ECHP micro data for Portugal, under a protocol between INE and CISEP – Centro de Investigação sobre Economia Portuguesa, ISEG-Technical University of Lisbon.

MTUS -

"This document presents results drawn from the Multinational Time Use Study (MTUS), but the interpretation of this data and other views expressed in this text are those of the author. This text does not necessarily represent the views of the MTUS team or any agency which has contributed data to the MTUS archive. The author bears full responsibility for all errors and omissions in the interpretation of the MTUS data. ".

SHARE -

"This paper uses data from the early release 1 of SHARE 2004. This release is preliminary and may contain errors that will be corrected in later releases. The SHARE data collection has been primarily funded by the European Commission through the 5th framework programme (project QLK6-CT-2001-00360 in the thematic programme Quality of Life). Additional funding came from the US National Institute on Ageing (U01 AG09740-13S2, P01 AG005842, P01 AG08291, P30 AG12815, Y1-AG-4553-01 and OGHA 04-064). Data collection in Austria (through the Austrian Science Foundation, FWF), Belgium (through the Belgian Science Policy Office) and Switzerland (through BBW/OFES/UFES) was nationally funded. The SHARE data set is introduced in Börsch-Supan et al. (2005); methodological details are contained in Börsch-Supan and Jürges (2005)."

Table 3 – Time use women (more than 65 years old) and changes in relation to 45-64 years old women

Author'calculations based on Eurostat

	BELGIUM		ESTONIA		FINLAND		FRANCE		GERMANY		HUNGARY		NORWAY		SLOVENIA		SWEDEN		UK	
	+65	change	+65	change	+65	change	+65	change	+65	change	+65	change	+65	change	+65	change	+65	change	+65	change
Personal care total	723	51	696	61	676	47	789	73	703	36	713	54	671	53	706	74	674	40	681	43
Employment total	0	-84	16	-133	7	-165	2	-135	3	-102	4	-128	11	-162	18	-112	5	-195	7	-133
Study total	1	-2	0	-1	1	-2	0	-1	2	-3	0	-1	..	..	0	-2	4	-1	2	-2
Domestic work total	271	-23	311	5	237	6	279	-11	277	25	292	-21	264	41	317	-22	255	41	267	9
Volunteer work and help total	8	-4	15	-6	13	-8	16	-1	17	-3	8	-2	15	5	6	-1	17	3	13	-8
Leisure total	392	91	358	93	443	131	329	102	374	65	392	114	426	83	359	85	424	138	402	113
Travel total	45	-30	39	-18	34	-27	23	-25	58	-19	31	-16	40	-24	32	-20	50	-31	54	-26
Unspecified time use	..	..	4	-1	30	20	2	-2	6	1	0	0	12	8	2	0	11	5	14	4
Number of diary days	1150		1066		745		1749		2035		4401		389		856		398		1947	

Table 4 – Time use men (more than 65 years old) and changes in relation to 45-64 years old men

	BELGIUM		ESTONIA		FINLAND		FRANCE		GERMANY		HUNGARY		NORWAY		SLOVENIA		SWEDEN		UK	
	+65	change	+65	change	+65	change	+65	change	+65	change	+65	change	+65	change	+65	change	+65	change	+65	change
Personal care total	708	49	696	46	677	61	791	86	708	60	724	61	662	67	701	66	677	76	682	68
Employment total	4	-169	33	-170	18	-214	9	-227	10	-175	14	-180	37	-215	43	-163	16	-256	17	-227
Study total	3	-2	0	-2	1	-4	0	0	3	-2	1	-1	..		1	0	2	-1	1	-2
Domestic work total	197	20	226	34	178	32	203	46	195	41	217	32	190	47	196	12	202	47	213	65
Volunteer work and help total	13	4	18	0	23	4	23	3	23	3	9	-5	15	3	11	-1	18	1	15	1

Leisure total	451	126	416	106	470	127	379	119	427	89	436	107	472	118	445	109	450	150	435	117
Travel total	63	-28	47	-15	43	-24	33	-26	66	-20	40	-15	55	-21	40	-24	66	-22	63	-26
Unspecified time use	..	..	5	1	31	18	2	-1	8	4	0	0	8	4	2	0	9	4	13	4
Number of diary days	1022		626		582		1297		1612		2686		416		650		448		1445	

Author 'calculations based on Eurostat

Table 5 – Female/Male Ratio by group of age and country

	BELGIUM			ESTONIA			FINLAND			FRANCE			GERMANY	
	45-65	*+65*	*dif.*	*45-65*	*+65*	*dif.*	*45-65*	*+65*	*dif.*	*45-65*	*+65*	*dif.*	*45-65*	*+65*
Personal care total	102	102	0	98	100	2	102	100	-2	102	100	-2	103	99
Employment total	49	11	-37	73	50	-24	74	39	-35	58	22	-36	56	24
Domestic work total	165	137	-28	159	138	-21	158	133	-25	185	137	-47	164	142
Volunteer work and help total	125	60	-64	117	84	-33	111	57	-54	85	70	-15	101	73
Leisure total	92	87	-6	86	86	0	91	94	3	87	87	-1	92	88
Travel total	83	71	-11	93	84	-9	91	79	-12	81	70	-12	89	88

	HUNGARY			NORWAY			SLOVENIA			SWEDEN			UK	
	45-65	*+65*	*dif.*	*45-65*	*+65*	*dif.*	*45-65*	*+65*	*dif.*	*45-65*	*+65*	*dif.*	*45-65*	*+65*
Personal care total	99	99	-1	104	101	-3	100	101	1	106	100	-6	104	100
Employment total	68	28	-40	69	30	-39	63	42	-21	73	31	-42	58	42
Domestic work total	170	135	-35	156	139	-17	184	162	-23	138	126	-12	174	125
Volunteer work and help total	66	82	16	83	100	17	58	55	-4	86	94	9	155	90
Leisure total	85	90	5	97	90	-7	82	81	-1	95	94	-1	91	93
Travel total	86	79	-8	84	73	-11	81	80	-1	92	76	-16	89	85

author calculations based on Eurostat. Note: Female/Male Ratio=100 if time use equal for both groups.

Table 6.1. Location of activities (Men), age +65 and change between age group 45-64 to +65 by Country

	BELGIUM		ESTONIA		FINLAND		GERMANY		HUNGARY		NORWAY		SLOVENIA		SWEDEN		Total 8 countries +65		Total 8 countries change	
	+65	*change*	*+65*	*change*	*+65*	*change*	*+65*	*change*	*+65*	*change*	*+65*	*change*	*+65*	*change*	*+65*	*change*	*avg*	*stdev*	*avg*	*stdev*
Home	84	15	81	14	79	15	78	11	88	15	79	19	85	15	80	19	81,68	3,49	15,22	2,53
Weekend house	0	0	6	2	5	2	1	1	1	0	3	-1	1	-1	2	1	2,43	2,08	0,41	0,94
Working place or school	0	-10	2	-11	0	-13	0	-12	2	-12	3	-15	2	-11	1	-16	1,33	1,00	-12,56	2,03
Other people's home	2	0	2	-1	3	0	2	0	2	-1	3	-1	2	0	3	-1	2,47	0,53	-0,39	0,50
Restaurant, cafe or pub	1	0	0	0	0	0	1	0	1	-1	0	0	0	0	0	0	0,42	0,30	-0,40	0,19
Travelling total	4	-2	4	-1	3	-3	5	-1	3	-1	4	-2	4	-1	4	-2	3,94	0,72	-1,63	0,67
Other, unspecified location	8	-2	6	-2	9	-1	12	1	4	0	8	-1	5	-1	10	0	7,74	2,74	-0,62	1,07
	100		100		100		100		100		100		100		100					
N [(a)]	1022		626		582		1612		2686	1062	1810	650	448	2610						

Source: author calculations based on Eurostat. (a) Number of diary days

Table 6.2. Location of activities (Women), age +65 and change between age group 45-64 to +65 by Country

	BELGIUM		ESTONIA		FINLAND		GERMANY		HUNGARY		NORWAY		SLOVENIA		SWEDEN		Total 8 countries +65		Total 8 countries change	
	+65	*change*	*+65*	*change*	*+65*	*change*	*+65*	*change*	*+65*	*change*	*+65*	*change*	*+65*	*change*	*+65*	*change*	*avg*	*stdev*	*avg*	*stdev*
Home	87	11	85	11	85	15	82	9	91	11	81	12	90	12	84	18	85,74	3,68	12,32	3,03
Weekend house	0	0	3	-1	2	-1	1	0	0	0	3	1	1	-1	2	0	1,54	1,17	-0,23	0,61
Working place or school	0	-6	1	-9	0	-10	0	-7	0	-9	1	-11	1	-8	0	-13	0,44	0,30	-9,09	2,33
Other people's home	2	-1	3	0	3	-1	3	0	3	0	5	1	2	0	3	-1	2,94	0,82	-0,17	0,49
Restaurant, cafe or pub	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0,24	0,21	-0,30	0,14
Travelling total	3	-2	3	-1	2	-2	4	-1	2	-1	3	-2	3	-2	3	-2	2,95	0,55	-1,70	0,52
Other, unspecified location	6	-2	5	-1	7	-1	10	0	3	-1	7	1	3	-1	8	-2	6,15	2,39	-0,83	0,84
	100		100		100		100		100		100		100		100					
N [(a)]	1150		1066		745		2035		4401		389		856		398					

Source: author calculations based on Eurostat. (a) Number of diary days

Table 7.1. – Personal Care by Country [(a)] - Retired +50 years old

		Man		Woman		Total	
(b)		Mean	Std. D	Mean	Std. D	Mean	Std. D
3	Austria	755,8	125,5	743,6	140,6	748,5	134,8
10	Canada	644,5	111,4	651,3	130,7	648,0	121,9
2	France	760,2	137,7	764,4	146,9	762,5	142,7
5	Germany	710,6	107,4	692,3	108,0	699,6	108,1
1	Italy	788,0	126,5	758,3	137,1	773,4	132,7
6	Netherlands	688,8	100,2	697,8	96,2	693,2	98,1
9	Norway	658,1	97,6	662,9	95,9	660,8	96,6
7	Slovenia	693,3	118,2	681,1	120,2	686,5	119,4
4	S. Africa	760,9	149,9	718,7	138,3	737,0	144,6
8	UK	666,7	111,9	662,9	105,5	664,4	108,1
11	USA	637,9	129,4	645,2	126,4	642,2	127,6
	Total 11 countries	722,5	131,6	707,7	133,2	714,1	132,7

Source: author computations based on MTUS (r.15/10/2005) microdata.

(a) Data are referred to different years, see Appendix 1 for details. (b) Country ranking for Personal Care activity

Table 7.2. – Other Activities by Country [(a)] - Retired +50 years old

		Leisur	TV	HousW	Educ	Soci	ChildC	MedCar
Canada		286	219	231	0	43	5	7
France		173	184	270	0	35	6	7
Netherlands		250	157	240	1	72	7	6
Norway		251	180	262	1	76	2	3
UK		227	203	278	0	55	1	5
USA		218	236	257	0	64	1	20
Italy		223	153	239	0	43	5	3
Germany		243	154	289	2	45	7	0
Austria		204	164	262	0	45	6	10
South Africa		193	79	282	2	137	6	3
Slovenia		264	169	289	0	13	9	8
Total 11 countries								
Men	*Mean*	249	193	217	0	46	4	6
	N	13781	13781	13781	13781	13781	13781	13781
	Std. D	163	130	161		85	23	32
Women	*Mean*	206	163	304		44	6	7
	N	18005	18005	18005	18005	18005	18005	18005
	Std. D	149	119	158		77	29	33
Total	*Mean*	225	176	266		45	5	6
	N	31786	31786	31786	31786	31786	31786	31786
	Std. D	156	124	165	7	80	27	32

Table 8. Retirement and Health Satisfaction

		Transition W1->w2	Transition W2->w3	Transition W3->w4	Transition W4->w5	Transition W5->w6	Transition W6->w7
		Before-After	Before-After	Before-After	Before-After	Before-After	Before-After
Satisfaction with health[a]							
Mean		2.97 - 3.11	3.01 - 3.47	3.19 - 3.36	3.30 - 3.25	3.31 - 3.34	3.12 - 3.39
St. dev.		.830 - .896	.838 - .802	.751 - .726	.855 - .806	.884 - .893	.677 - .744
Age (retirement)							
Mean		63.9	65.2	64.8	65.26	62.83	65.29
St. Dev		7.78	9.36	8.33	7.93	8.43	8.32

[a]The question on ECHP was "*How is your health in general?"* 1=very good, 2= good, 3=fair, 4=bad, 5=very bad).w1=1994, w7=2000. (Min=5very bad; Max=1 very good).

Table9. Social Relations and Retirement

	Member of a club or group (Yes)	Talk with Neighbors (Yes)	Meet friends or relatives (Yes)	looking after children or other person with special need (Not)
Before Retirement	18%	86%	66%	95%
After Retirement	21%	90%	74%	88%

Appendix 1

Table 1 [Appendix 1] Micro data bases used in the research Countries

Country	**MTUS**	**HETUS** Eurostat	**SHARE**	**ECHP** Eurostat
	(a)	(c)	(a)	(b)
Austria	■		■	■
Belgium		■		■
Canada	■			
Denmark			■	■
Estonia		■		
Finland		■		■
France	■	■	■	■
Germany	■	■	■	■
Greece			■	■
Hungary		■		
Ireland				■
Italy	■	■	■	■
Latvia		■		
Lithuania		■		
Netherlands	■		■	■
Norway	■	■		
Poland		■		■
Portugal				■
Slovenia	■	■		
South Africa	■			
Spain		■	■	■
Sweden		■	■	
Switzerland			■	
UK	■	■		■
USA	■			

Note: (a) Microdata used in the research; (b) Microdata for all the 15 EU before last enlargement countries, this draft paper only use this base for one country (Portugal); (c) Only published data in table format is available; dabbles from Spain, Italy, Latvia, Lithuania and Poland are not used in this draft paper because were added very recently (Eurostat, 2006).

Table 2 [Appendix 1] - Household Categories and Size by Data source
Intergenerational Households(*)

ATUS[67] 2003 - ; US; N=19,663 (2003)	MTUS[68] Several ys; 12 countries; N=268,257	ECHP 8waves, 1994-2001; 15 countries			SHARE 2004 r.1; N=22,777
famstat: • Adult aged 18 to 39 with no co-resident children <18 • Adult 18+ living with 1+ co-resident children aged <5 • Adult 18+ living with 1+ co-resident children 5-17, none <5* • Adult aged 40+ with no co-resident children <18 • Respondent aged <18 and living with parents or guardians* ***hhtype:*** • married with child* • married without child • female hh with child* • female hh without child • male hh • single male • single female • other	***individual level family status:*** • Aged 18 to 39 with no co- resident children <18 • Aged 18+ living with 1+ co-resident children aged <5 • Aged 18+ living with 1+ co-resident children 5-17, none <5* • Aged 40+ with no co-resident children <18 • Aged <18 and living with parent(s)/guardian(s)* • Aged <18, living arrangement other or unknown ***hhtype*** • One person household • Married/cohabiting couple alone • Married/cohabiting couple + others • Other household types	Sociological typology: • Single adults • 1 person aged 65+ • 1 person aged 30-64 • 1 person aged <30 • single parent w 1+ children (all <16)* • single parent with 1+ children (at least one aged 16+)* • couple without children(at least 1 person aged 65+) • couple without children (both persons aged less than 65) • couple with 1 children (<16)* • couple with 2 children (all <16)* couple with 3children (all <16) • couple with 1+ children (at least one aged 16 or more)* • other households	Economical Typology-General : - Households without dependent children .1 person hh male(female) <30 .1 person hh male(female) 30-64 .1 person hh male (female) 65+ .2 adults without dependent child both <65 .2 adults without dependent child at least one 65+ .other without dep.child -Households with dependent children* .single parents with 1+ dep. c.* .2 adults with 1(2/3+) dependent children* .other households with dep. children*	Economical Typology-focused on persons aged 65 or more: - Households without dependent children .1 person hh male(female) <65 .1 person hh male (female) 65+ .2 adults without dependent child both <65 .2 adults without dependent child at least one 65+ .2 adults without dependent child both 65+ -Households with dependent children .single parents with 1+ dep. c.* .2 adults with 1(2/3+) dependent children .other households with dep. children*	- Household size (hhsize) - Household type (hhtype) .single .couple .single with children* .couple with younger children (aged 0 to 17)* .couple with older children (aged 18 and over)* .couple with young & old children* .single or couple (aged 50 and over) living with parent* .three generation household* .other

(*) the intergenerational households=* ; potential intergenerational households are not signaled.

[67] American Time Use Survey (ATUS) has some variables which are ATUS-CPS variables. The variables and the categories shown on this table result of the combination of original micro file variables as included in ATHUS.

[68] Some variables could not be created for some countries and years. Original household income groups, educational groups and others differ across the countries and the surveys for the same country.

Table 2(cont.) [Appendix 1]– Household Categories and Size by Microdata source

	ATUS	MTUS	ECHP	SHARE
Household Size	• N of adults in hh • N under 18 years old • N under 5 years old	• N people in hh • child under 18 in hh • Unmarried child in parental home • Diarist a single parent	• N of hh members • N of adults at hh (<16) • N of adults at hh (<14)[1] • Equivalized Size, OECD Scale • Equivalized Size, modified OECD Scale	• N of hh members
Includes Relational (familiar relationship information? Yes=1 ou No=0)	1	1	1	1

Table 3 [Appendix 1]– Time Transfers, Financial Private Transfers and Well-being information on data sources

	ATUS	MTUS	ECHP	SHARE
Time Transfers	• Non market work • Care hh members • Child care (1st activ.) • Child care (2nd activ)	• Non market work • Child Care	• Looking after children or other persons (y/N) and duration • Altruistic behavior (survey question on the paper'text)	Help time (Y/N and duration) for hh members and non hh members: • Personal care • Practical household help • Paperwork
Financial Transfers	n.a. in ATUS[1]		• Private Transfers Received (as a component of Personal Income)	Questions about • regular Financial Transfers received from non hh members • regular Financial Transfers given from non hh members •
Well-being	• Income • Leisure Time (Act.&Pass) • Personal time	• Income • Leisure Time (Act.&Pass) • Personal time	• Income and income dynamics • Lowest monthly income to make ends meet • Durable goods • Health (self perception) • Financial situation • Social contacts	• Income • Health • Perception of well-being • Social contacts
Contextual Variables	• Family Type and Size • Income (x Groups) • Education • Age • Employment Status • Ethnic Group	• Family Type and Size • Income groups • Income groups (dist: L25, M50, H25) • Education • Age • Employment Status	• Family Type and Size • Income groups • Education • Age • Employment Status	• Family Type and Size • Income groups • Education • Age • Employment Status • relationship

Appendix 2

Table 1 [Appendix 2] Activities associated with well-being

ACTIVE and CULTURAL LEISURE	SOCIAL LEISURE
■ AV04 SCHOOL or CLASSES ■ AV08 ODDJOBS ■ AV09 GARDENING, PETS ■ AV17 LEISURE TRAVEL ■ AV18 EXCURSIONS ■ AV19 ACTIVE SPORT ■ AV21 WALKS HOBBIES ■ AV24 CINEMA, THEATRE ■ AV33 STUDY ■ AV34 READING BOOKS ■ AV35 READING PAPERS, MAGAZINES ■ AV39 KNITTING SEWING ■ AV40 OTHER HOBBIES AND PASTIMES	■ AV22 RELIGIOUS ACTIVITIES ■ AV25 DANCES, PARTIES ■ AV26 SOCIAL CLUB ■ AV27 PUB ■ AV28 RESTAURANT ■ AV29 VISITING FRIENDS ■ AV37 CONVERSATION ■ AV38 ENTERTAINING FRIENDS PASSIVE LEISURE ■ AV20 PASSIVE SPORT ■ AV30 LISTENING TO RADIO ■ AV31 TELEVISION, VIDEO ■ AV32 LISTENING TO TAPES ETC ■ AV36 RELAXING

Source: Gauthier and Smeeding (2000), p.22

Appendix 3

Table 1 [Appendix 3]- Variable Descriptions

Variables	Description	Obs.
Dependent variables (in Probit and Tobit Models)		
totcare_1st2nd_YN	=1 if respondent spend time on care (children or other; main activity and main and second activity for children care), 0 otherwise	b)
totcare_1st2nd	time spent on care (children or other; main activity and main and second activity for children care) (in minuts per day)	b)
time_child	time spent on children care (in minuts per day)	a)
Independent variables		
female_YN	=1 if respondent is female, 0 otherwise	a) b)
hhlsize_m	number of members of the hh	a)
married_YN	=1 if respondent is married, 0 otherwise	a) b)
retired_YN	=1 if respondent is retired, 0 otherwise	a)
incomeG_m	income (in -25 50 +25 groups and categories)	a) b)
educ_cat	education level (categories)	a) b)
paid_YN	=1 if respondent has a paid work, 0 otherwise	a)
nchild18_YN	=1 if household has members <=18, 0 otherwise	a)
ownhome_YN	=1 if respondent is owner of the home, 0 otherwise	b)
empstat_YN	=1 if respondent is at labor market, 0 otherwise	b)
age	age (in years)	a)b)
nadult	number of adults of the household	b)
empsp_YN	=1 if respondent' spouse is in labor market, 0 otherwise	b)
incomeqt_m~s	income (in quartiles and 16 categories)	b)

Note: a) defined for 10 countries; b) defined for US based on ATUS 2003.

Table 2 [Appendix 3]– Summary Statistics (USA 2003)

Variable	Obs	Mean	Std. Dev.	Min	Max	
income03_m~s	17331			1	16	
incomeqt_m~s	17331	2.536149	1.131771	1	4	
empsp_YN	11914	.6847406	.4646386	0	1	
empstat_YN	19663	.6591568	.4740048	0	1	
ageyngst_b~N	8670	.0882353	.2836531	0	1	
ageyngst__~s	8670			0	17	
agryngst_s~1	8670	8.009689	5.111054	1	18	
under5_YN	19663	.1737273	.3788845	0	1	
under18_YN	19663	.4409297	.4965111	0	1	
ethnic_whi~N	19663	.8361389	.3701589	0	1	
ownhome_YN	19663	.7501907	.4329135	0	1	
urban_YN	19613	.7992658	.4005598	0	1	
tmain33_in~N	19663	.1161064	.3203606	0	1	
tmain34_ol~N	19663	.1093933	.3121399	0	1	
tmain40_ad~N	19663	.1997152	.3997964	0	1	
tottime_c~40	19663	43.10868	92.91222	0	1280	
tottcare_YN	19663	.4000915	.4899291	0	1	
tcarec_2nd	19663	151.3401	257.4196	0	1230	
tottcare_1~d	19663	194.4488	298.2219	0	2299	

income0~1516	17303			1	14	
tcare502nd	19663	75.67007	128.7098	0	615	
totcare1~502	19663	118.7787	179.4945	0	1714	
totcare_1s~N	19663	.4931597	.4999659	0	1	
wchild_YN	19663	.4873621	.499853	0	1	
age	19663	46.9998	16.3729	18	80	
sex	19663	1.566851	.4955233	1	2	
ethnic	19663	1.230891	.5937557	1	4	
ethnic2	19663	1.210446	.5092559	1	3	
hisp	19663	.1093424	.3120763	0	1	
educ	19663	3.882114	1.326221	1	6	
civstat	19663	1.829273	1.168229	1	4	
famstat	19663	2.036414	1.03945	0	3	
hhtype	19663	2.855617	2.046369	1	8	

Table 2 [Appendix 3]– Summary Statistics (10 countries)