

TIME USE AT OLDER AGES: CROSS-NATIONAL DIFFERENCES

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Abstract: This paper analyses patterns of time use of older adults in nine countries: Canada, Finland, Germany, Italy, Japan, Netherlands, Sweden, the United Kingdom, and the United States. Using time use surveys carried out in these countries between 1985 and 1996, the paper aims at describing country-level variations in the aggregate patterns of time use of older adults, and secondly, at examining changes in the patterns of time use associated with aging. The results suggest large cross-national differences in the patterns of time use of older adults, but remarkable similarities in the age patterns of activities. While time spent on paid work decreases with age, time spent on passive leisure activities, personal activities, and to a lesser extent active leisure activities, increases with age.

Over the past decades, there has been a significant increase in the number of years an average worker may expect to live after retirement. While in 1940, in the United States, an average worker could expect to live 8.3 years after retirement, by 2000 this figure had increased to 14.6 years, and is expected to reach 17.7 years by 2060 (Social Security Advisory Board 1998).³ The causes of this increase in the post-retirement age are well-known: a marked decrease in the average age at retirement, combined with a significant increase in life expectancy (U.S. Census Bureau 1989, 1999; Poulos and Nightingale Undated).

What is however less well known is how people spend their 15 or more years after retirement. Do they spend their time actively, traveling, visiting friends and relatives, and visiting places? Do they replace paid work by unpaid work and volunteering? And to what extent do patterns of time use vary across countries? And finally, to what extent do

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³ These figures are likely to be under-estimated as they are based on the life expectancy at age 20.

they vary with age and gender? Our aim is two-fold. First, we want to describe country-level variations in the aggregate patterns of time use of older adults, and secondly, we want to examine the changes in the patterns of time use associated with aging. The first of these aims is relatively straightforward and relies on the analysis of comparable time use surveys across different countries. For the purpose of this paper, we analyze time use surveys from nine countries: Canada, Finland, Germany, Italy, Japan, Netherlands, Sweden, the United Kingdom, and the United States. As discussed later, these surveys are highly comparable in that they all relied on the diary as mode of data collection. In all surveys a nationally representative sample of respondents were asked to keep a diary of all activities carried out during a full day.

The second aim is less straightforward as the analysis of the impact of ageing on patterns of time use would, in theory, require the analysis of longitudinal data. In absence of such data, we are forced to rely on cross-national data.⁴ The impact of ageing on patterns of time use will be inferred by comparing the patterns of time use of various age groups, at one point in time. It is however likely that there are significant cohort effects that will not be captured with the cross-sectional data. The increased educational level of the population, and the increased income, wealth, and health observed in recent cohorts of older adults, suggest that the current generation of adults whom are about to retire has different characteristics than the earlier cohorts, and as such may exhibit different patterns of time at older ages. And while a careful statistical control for factors such as health, income, and education may partly capture these differences across cohorts, the current version of the time use surveys does not allow us to integrate such statistical controls in our analysis – at this point in time.

The paper is structured as follows. Section 1 reviews the literature on aging and time use. Section 2 discusses the theory guiding our analysis. Section 3 presents our method and data, Section 4 presents our findings, and Section 5 concludes the paper by indicating future avenues of research.

⁴ We are aware of only one longitudinal time use survey: the United States ‘Time Use Longitudinal Panel Study, 1975-1981’ (see: <http://www.icpsr.umich.edu/cgi/ab.prl?file=9054>).

BACKGROUND AND LITERATURE

Interest in patterns of time use of older adults is not new. In the early 1960s, interest in the concept of ‘successful aging’ stimulated numerous studies that continued into the 1990s (Havighurst 1961; Rowe and Kahn 1998; Everard 1999). Successful aging was equated with life satisfaction and good health, and several studies empirically tested the relationship between patterns of time use and various indicators of well-being (Larson 1978). These studies were however typically based on small non-nationally representative samples. Examples include the first Duke Longitudinal Study of Aging (Palmore, 1979), as well as studies by Hooker and Ventis (1984), Hoyt, Kaiser, Peters, and Babchuk (1980), Larson, Zuzanek, and Mannell (1985), and Moss and Lawton (1982).⁵ These studies used various techniques to capture people’s pattern of time use and activities, including diaries and recall questions about time spent on various activities during a fixed time period, for example, during the past week or month (so called stylized questions).

The style of research then changed enormously from the 1980s with the availability of new large surveys. The Survey of Income and Program Participation (1984-5), and the American’s Changing Lives survey (1986), have led to a new wave of research on aging and patterns of activity. Three major lines of inquiry have since been followed. Patterns of time use of older adults have been studied from: (i) a national account perspective in an attempt at estimating the value of unpaid work provided by older adults (Herzog and Morgan 1982; Robb et al. 1998; Stone and Chicha 1996); (ii) a health perspective, especially in view of evidence that sport, active leisure and active social involvement have positive impacts on people’s mental and physical health (Musick, Herzog and House 1999); and (iii) a work and retirement perspective in an attempt at understanding patterns of retirement (Hayward, Hardy and Grady 1989). While these recent studies have

⁵ Among the large nationally representative surveys, one should mentioned the 1965 and 1975 Americans’ Use of time surveys (Robinson 1977) and the 1974 survey commissioned by the National Council on Aging (Louis Harris and Associates 1975).

tremendously increased our knowledge of the determinants, and consequences, of people's use of time at older ages, they have been limited in two ways. First, most of these recent studies have relied on stylized questions to capture people's time use. Evaluation studies suggest however that such questions do not provide accurate estimates of time use, as compared to diaries (Robinson and Godbey 1997; Juster and Stafford 1991). Even for a time use category such as paid work, evidence suggests that stylized questions provide inaccurate estimates of time use (Robinson and Bostrom 1994). Second, very few of the recent studies have examined patterns of time use at older ages from a cross-national perspective. Several studies have examined cross-national differences in the age at retirement and in the labor force participation of older adults (Quinn and Smeeding 1997, 1998). But we know little about cross-national differences in people's use of time outside work. In particular, we know little about cross-national differences in people's investment in active and passive leisure activities, and in cross-national differences in the extent of active aging.

The concept of active aging is closely related to the 1960s concept of successful aging. But while successful aging is mainly associated with life satisfaction, the concept of active aging instead emphasizes the economic contribution of older adults.⁶ More formally, active aging is defined as: 'the desire and ability of many seniors to remain engaged in economically and socially productive activities' (The Denver Summit of the Eight, 1997). This concept has received a lot of attention in recent years, especially from national governments and the OECD (Organization for Economic Cooperation and Development) (see for example, Hicks 1996/7; Hicks 1998). One prominent argument in the discussion surrounding the concept of active aging is that despite seniors' desire and ability to remain economically and socially engaged, public policies and the labor market are not providing seniors with the opportunities to do so. Instead of valuing and encouraging the participation of older workers in productive activities, pension reduction penalties, or 'taxes' on continued earnings beyond early eligibility, as well as various other policies have been restricting the options of older workers and their paid market

⁶ This distinction between successful aging and active aging is not always clear in the literature. In general, the concept of successful aging is more likely to be a term used in the gerontology literature, while the concept of active aging tends to be mainly used in the economic literature.

work (Gruber and Wise 1998a, 1998b). Because they have introduced various work disincentives, nations have been encouraging an early rather than a late retirement, and an abrupt rather than gradual retirement from the labor force. And while some workers may happily retire at an early age, some other evidence suggests that some workers retire earlier than they had expected or wanted to (Burkhauser 1998; Burkhauser, Couch and Phillips 1996; Congressional Budget Office 1999). Other authors (e.g. Quinn 1998; Burkhauser and Quinn 1990) argue that the elderly prefer to gradually wind down their work hours, moving from a career job to full work stoppage by means of a set of part-time 'bridge jobs' (e.g. see Quinn and Smeeding 1997 for the international evidence). Very little is known about unpaid work as an alternative to paid work at older ages. If public policies affect the way market work patterns change at older ages; it is however less clear how they affect non-market work.

The analysis of the older adults 'desire and ability', on the one hand, and their opportunities, on the other, is however not straightforward. As will be discussed in the theoretical section, patterns of time use are influenced not only by personal characteristics such as education and health, and by public policies, but also by the perception of rewards, habits acquired at younger ages, etc. Leaving aside this theoretical perspective, for the moment, what do we know about how older adults use their time? Studies based on American data suggest that, on aggregate, older adults tend to devote less time to paid work and to physically demanding leisure activities than younger adults (Cutler and Henricks 1990), and to devote more time to home-based and family-related activities (Kelly 1997). There is also evidence that in the process of aging, older adults tend to restrict the range of their activities (Herzog et al. 1989), and to spend more time alone (Larson, Zuzanek, Mannell 1985). Studies based on Canadian data suggest that older adults spend more time watching television than younger adults, but that they are also more likely to spend time reading, participating in sport, hobbies, games, and crafts than younger adults, and that they are more likely to engage in religious activities (Jones 1990).

Canadian data further suggest that older adults spend more time on personal care than younger adults (including sleeping), but as much time on housework, shopping, and childcare (Frederick 1995). Part of the different allocation of time by older adults appears to be related to health conditions that limit their daily activities. Evidence from Germany suggests that the so-called ‘old-old’ (85 years old and over) have lower levels of productive and consumptive activities than younger elderly, and that part of this trend is explained by reduced walking mobility (Klumb and Baltes 1999). All these results are based on single-country studies. There are in fact very limited cross-national comparisons of patterns of time use among older adults. The studies by Lingsom (1991, 1995) are the exceptions and suggest large cross-national differences. For instance, among women age 65-74 years old, data from the late 70s and early 80s suggest that time spent on domestic work varies between a minimum of 2.7 hours per day in Denmark and a maximum of 5.3 hours in Norway, while time spent on leisure activities varies between a minimum of 4.0 hours in Hungary and a maximum of 8.9 in Denmark (Lingsom 1995).⁷

No attempt has been made at linking these empirical results with theories concerning the macro-structures of countries. Our paper, thus, aims at contributing to this cross-national literature, by examining the patterns of time use of older adults in various countries, in a comparative context. More particularly, we make a first attempt to disentangle micro- and macro-level influences in the patterns of time use of older adults.

THEORY

From an economic perspective, the allocation of time between work and leisure is assumed to follow a utility maximization process, assumed to be dependent on preferences and the cost of each activity, and being subject to income and time constraints (Becker 1965; Gronau 1977). In such a model, public policies may affect the

⁷ We suspect that some of these differences may be due to non-comparable codes of activities. We are currently in the process of assessing if this is the case using the same datasets. Results are not yet available. In this paper, we instead rely on more recent surveys and compare data that we have thoroughly checked for consistency and comparability.

allocation of time by increasing the cost of market work, by reducing the cost of alternative activities (for example by subsidizing the cost of leisure activities), or by increasing the individual's income (through the provision of cash benefits). Expanding from this model, we assume that the allocation of time is not only subject to income and time constraints, but also to an individual's health constraints, family responsibility constraints (including the caring of children or frail relatives), and opportunities (including flexible work opportunities at older ages). And while public policies may not alter the time and health constraints,⁸ they may alter income, family responsibility (through the provision of care services), and work opportunities. On the basis of this model, we can therefore expect individuals residing in countries with very different public policies to display very different patterns of time use (*ceteris paribus*).

The original model of time allocation considered only two types of activities: work and leisure. Because we are interested in active aging, and especially in the allocation of time between different types of leisure activities, our model expands the range of activity options. As discussed below, we distinguish six main categories of activities: paid work, unpaid work (such as caring and volunteering), housework, active leisure, passive leisure, and personal activities (such as sleeping, eating, dressing, and bathing). The related model appears in Figure 1 below.

[Figure 1 here]

There are several interesting features in the above model. First, the 'so-called' preferences may be influenced by social norms and values, but also by information concerning the benefits of various options, especially the health benefits. For example, knowing that doing regular exercise brings positive health benefits may increase preference for this option over more passive type of activities. Second, the factor 'cost of activities' includes the direct cost of an activity (e.g. the direct cost of traveling to Florida

⁸ The provision of state support for frail elderly and elderly suffering from conditions that affect their daily activities can mitigate the impact of health problems on patterns of time use.

every winter) but also its indirect cost (e.g. the indirect cost of not working in the market while traveling to Florida, or finding a new job in Florida). Third, we should also note that there is potentially some endogeneity in the above model as the income constraint may be strongly related to the allocation of time to paid work. This model, however, links patterns of time use to sources of income other than earnings, e.g. savings, old age pension, social security benefits, and independent wealth – thus partly avoiding the problem of endogeneity.⁹ Fourth, some activities such as caring and housework may be purchased on the market and may not require one's own allocation of time. This is however not the case for all types of activities (for example, one cannot pay somebody else for one's own sleep!). Fifth, the above model refers to an individual maximization process while for married individuals, the maximization may operate at the household level and may involve a division of labor based on comparative advantages. For instance, the traditional model of division of labor suggests that wives spend more time doing housework and husbands more time on paid work, because of their respective comparative advantage. Sixth, the allocation of time is not only subject to a time constraint (everybody being constrained to 24 hours), it is also subject to minima (everybody needs to devote a minimum of time to eat and sleep in order to survive) and to saturation (many people may enjoy 1 or 2 extra hours of sleep, but very few would truly enjoy 12 extra hours of sleep). Seventh, preferences for some activities over others may be based on current information but they may also be based on good or bad habits acquired at younger ages (for example the habit of exercising on a regular basis). Eighth, the income constraint is based on the current value of income/wealth but may also involve an assessment of the future value of wealth, including the future value of pensions. At time of economic and social security uncertainties, this future value of pensions may be difficult to estimate. Ninth, the above model assumes rational decisions even though we have no strong assurances that all individuals act rationally. For example, individuals may know that exercising regularly is good for their health, but may not want to act upon it.

⁹ In fact, the problem of endogeneity is still present as savings and wealth may be related to past patterns of time use and past allocation of time to paid work.

As suggested earlier, our model assumes that public policies may affect the patterns of time use by increasing income (through state support), reducing family responsibilities (by providing care services, for children or frail relatives), by increasing work and leisure opportunities at older ages, and/or by subsidizing the cost of various activities. More concretely, public policies may influence the allocation of time through elements such as the legal age at retirement, the level of pension benefits, the incentives or disincentives to retire early, the subsidies to recreational activities for elderly people, etc. Three outcomes ought however to be distinguished here: the impact of public policies on the age at retirement, on the type of transition into retirement (gradual or abrupt), and on the patterns of time use once retired. Since these three outcomes entail decisions regarding the allocation of time (especially time away from paid work), we make no explicit attempt in this paper to distinguish them. Instead, through a careful analysis of the variations in patterns of time use by age, we will be observe the timing and nature of the transition to retirement, and the related process of re-allocation of time that used to be spent on paid work.

As suggested earlier, such an analysis will be done on the basis of cross-sectional data, and is likely to be affected by cohort effects. Interestingly, while the theory of time allocation allows one to derive very precise hypotheses about the impact of public policies on the timing of retirement, and on the type of retirement, it does not allow the formulation of specific hypotheses with regard to the allocation of time after retirement. It is indeed not clear which types of activities may benefit from various forms of state subsidies and support. In particular, it is not clear that older adults would necessarily carry out more productive activities if opportunities were offered to them, or would necessarily attend more cultural events if these events were subsidized. The active aging concept explicitly assumes that older adults have a 'desire' to carry out 'productive' economic and social activities. But while there is indeed some evidence to suggest that some 'young-old' retirees would have preferred to remain in the labor force, there is no strong evidence that very old adults prefer productive activities over non-productive ones. In fact, the empirical literature instead suggests that at older ages people tend to focus on non-productive leisure activities such as family-related activities (Kelly 1997).

On the other hand, studies carried out on small samples of adults indicate that social engagement and intimate relationships are associated with a higher level of satisfaction and well-being in older ages (Kelly, Steinkamp, and Kelly 1987). Results from a national sample of older Americans furthermore suggest that volunteering has a protective effect on mortality, possibly because of the social interaction opportunities and satisfaction that it provides (Musick, Herzog, House 1999).

The theories suggested here undoubtedly complicate the model of allocation of time. And it is clear that we will not be able to formally model all these theoretical considerations in the empirical part of the paper. Our objective is in fact very modest: to simply describe cross-national differences in the aggregate patterns of time use of older adults, while controlling for age and gender. Since the countries analyzed in this paper belong to different welfare state regimes, it may be tempting to interpret the observed cross-national differences in the patterns of time use of older adults in terms of cross-national differences in the welfare state. We refrain however from doing so since the welfare state encompasses a myriad of different policies, programs, and subsidies ---and since all these policies may not necessarily have the same impact on the patterns of time use of older adults.

DATA AND METHOD

To analyze patterns of time use of older adults, we rely in this paper on time use surveys carried out between 1985 and 1996 in nine countries. These surveys were selected in view of their availability and comparability¹⁰ (see below). A technical summary of the surveys appears in Table 1. All these surveys used the diary as mode of data collection. The diary consists in a sequential record of all the activities carried out by respondents during one entire day. It typically records the type of activity, the beginning and end time,

¹⁰ The micro-level data of all these surveys, but Japan, are archived in the Multinational Time Use Study (MTUS). They have all been translated into English and harmonized into a common set of variables. For more information about MTUS, see: <http://www.iser.essex.ac.uk/mtus/index.html>.

with whom was the activity carried out, and where. This mode of data collection has been routinely used since the 1960s (Szalai et al. 1972). As pointed out above, the diary has furthermore been shown to result in more reliable estimates of time use than the stylized technique (Robinson and Godbey 1997; Juster and Stafford 1991). In most European countries, the diary is self-administered ('fresh' diary) and followed by a personal visit. In Canada, diaries are filled out on a recall basis through a phone interview about the activities carried out the day before (yesterday's diaries). In the United States, diaries have been collected through mail back, telephone, and personal visits. Studies have revealed no major differences between these three modes of data collection (Robinson and Godbey 1997). However, the telephone method tends to result in less 'not ascertained' time, and tends to under-report activities of very short duration. In reliability studies, no systematic difference was found between the self-administered ('fresh') diary and the recall ('yesterday') diary.

Table 1. Technical information on the time use surveys

Country	Year	Age	Sample size ¹	Response rate ²	Diary	Survey period
Canada	1992	15+	9815	77%	1-day	12 months
Finland	1987	10+	5224	74%	2-day	12 months
Germany	1992	12+	7200 (households)	Quota	2-day	4 months
Italy	1989	3+	13729 (households) 38110 (individuals)	70% (households)	3-day	12 months
Japan	1996	10+	99,000 (households) 270,000 (individuals)	Quota	2-day	1 month
Netherlands	1985	12+	3263	54%	7-day	1 month
Sweden	1990/1	20-64	3943	75%	2-day	2 months
UK	1987	16+	1996	70%	7-day	1 month
USA	1985	18+	5358	55%	1-day	12 months

Notes: 1- The sample size refers to the number of individuals (all ages). 2- Germany and Japan used a quota sample.

No information is available on the initial response rate.

Source: Author's tabulation from information contained in Fisher (2000) and Mikami (1999).

In two of the surveys used in the paper (Canada and the USA), respondents were asked to keep a one-day diary. At the other extreme, in two countries (Netherlands and UK) respondents were asked to keep a 7-day diary. In the other five countries, 2- and 3-day diaries were kept. Because the collection of data has been spread over the 7 days of the week in all surveys, and because we use weights that insure an equal representation of every day of the week, the length of the diary is not expected to affect the comparability of the results – at least at the aggregate level.¹¹ Similarly, in most surveys the collection of data has been spread over the 12 months of the year in order to capture seasonal variations. This was however not the case in Germany, Japan, Netherlands, Sweden, and the UK. Caution will be required when comparing results to countries based on 12-month data collection. Sample sizes vary tremendously across surveys, from few hundreds to several thousands. All the surveys selected for this project used nationally representative samples.¹² Response rates vary considerably, from about 50 to 80 percent. The German and Japanese surveys moreover used a quota sample by which non-respondents were replaced by additionally sampled respondents. As in all surveys, the non-response raises questions about the characteristics of non-respondents. In this case, one may be concerned that non-respondents are typically busier than the average respondent and therefore have no time to fill out the diary, have some health conditions that prevent them from filling out the diary, or have a completely disorganized and hectic schedule that makes it difficult for them to fill out a diary.¹³

¹¹ In Italy, 3-day diaries were collected. The data however only allows us to distinguish workdays, Saturdays, and Sundays, rather than precisely the 7 days of the week. While our weights insured that workdays represented 5/7 of the week, we were not able to distinguish individual workdays and weigh them separately.

¹² In all surveys, we used day weights to ensure equal representation of the days of the week. We also use the population weights provided by the statistical agencies that have carried out these surveys. For more information about the weights in time use surveys, see Gauthier and Victorino (2000). For the UK, the results are however based on non-weighted data because no original weights were provided by the agencies having carried out the survey. Preliminary analyses reveal that the population weights do not have a large impact on the results.

¹³ Analyses carried out in Norway, as part of the 1990 time use survey, suggest an under-representation of elderly people, especially elderly women. Non-response due to refusal was higher among older people than younger ones. ‘Non-response due to own illness or death in the family also occurred more frequently among older people than younger ones’ (Norway Statistical Bureau 1992: 30-31). No comparable information is available for the countries analyzed in this paper.

It should be noted that we use the micro-level data for all countries, but Japan. Because we did not have access to the Japanese micro-level data, we relied on published data. While this is not expected to affect the comparability of the data, the restricted number of codes of activities used in the Japanese survey does introduce elements of non-comparability (see below).

All surveys selected in this project used a comparable listing of activities. This overlap is in great part due to attempts at developing a uniform typology of activities in the 1960s (Szalai et al. 1972). Surveys carried out in recent years have used variants of this original typology: variants which better reflect the countries' specificity and which are better suited to the surveys' objectives and constraints. In the harmonized versions of the surveys used in this paper, the original codes of activities were recoded into a common set of 40 activities. For the purpose of this paper, these 40 activities were further grouped into five broad categories and nine sub-categories:

- Paid work (e.g. paid work, travel to and from work, coffee break)
- Housework
 - Routine housework (e.g. cooking, cleaning)
 - Non-routine housework (e.g. shopping, repair, gardening)
- Active leisure activities:
 - Unpaid work (e.g. childcare, unpaid help to family or non-family members, volunteer and civic work)
 - Social and out of home leisure activities (e.g. travel for pleasure, cultural activities, visiting and entertaining friends)
 - Hobbies and in-home leisure activities (e.g. hobbies and crafts, reading)
 - Sports (e.g. walking, sport)
- Personal activities (e.g. sleep, eating, bathing, dressing, medical care)
- Passive leisure activities (e.g. watching television, relaxing)

A more detailed account of this classification of activities appears in Table A.1 in appendix, along with supplementary notes about the comparability of the codes of activities found in the Japanese survey. It should be noted that although housework is a form of unpaid work, we draw a distinction between these two forms of activities, and confine the latter (unpaid work) to volunteer and civic work.

The surveys used in this paper vary substantially with regard to the demographic, social, and economic covariates that were collected in addition to the diary itself. While some surveys collected only basic demographic information about the respondent (age, gender, marital, and employment status), others collected a much wider and richer set of data, including education, income, health/disability of the respondent and of household members, and type of occupation. In the current version of the harmonized files, only a core set of covariates is available.¹⁴ In this paper, we restrict the analysis to a description of patterns of time use by gender and age. Four main age groups are distinguished: 45-54, 55-64, 65-74, and 75 and over.¹⁵ Although information on employment status is available in the dataset, we report the results for all employment states combined. We are obviously aware that the cross-national differences in the mean age at retirement and in the employment rates of older people will affect the observed patterns of time use of older people. But as argued earlier, since the timing and nature (gradual or abrupt) of retirement ultimately reflect decisions regarding the allocation of time, we feel justified in combining respondents of various employment states.¹⁶

¹⁴ This includes: age, gender, marital status, employment status, and household structure. Some other covariates are currently available in the so-called World5 version of the harmonized surveys. However, at the time of writing this paper, these additional covariates had not been thoroughly checked for cross-survey comparability.

¹⁵ There is no unanimity in the literature as to the cutoff point to distinguish the 'young-old' and 'old-old'. For practical reasons, we grouped together all respondents age 75 and over as the small number of cases prevents finer age grouping.

¹⁶ There are two additional reasons for combining employment states. First, and as pointed out above, there is evidence in the literature that an increasing number of workers are opting for a gradual, rather than an abrupt, retirement by reducing their hours of work, or by opting for a series of part-time jobs. Furthermore, there is also evidence of an increasing trend towards engaging in paid work after retirement, at least in the United States (Herz 1995). And while some of these work returnees may continue to declare themselves as retired (especially if the work is part-time or irregular), others may declare themselves as employed. Thus, contrasting the employed and retired respondents may obscure the complex pattern of gradual retirement. Secondly, the information on retirement comes from a question about the main activity during the week prior to the survey. In some surveys, respondents were given a wide choice of answers including employed, retired, unable to work because of disability, housemaker, etc. while in others the choice was much more

Data limitation

Before proceeding further, some information about data limitation is warranted. First, although the data collection was spread throughout the 12 months of the year in several of the surveys, there is a tendency for diaries to capture ‘regular days’, that is, days during which respondents were at home. We are unlikely to be capturing vacation or holidays days spent away from home. For the older adult population, this means that we are unlikely to be capturing days during which people were away for a long period of time, visiting relatives in other parts of the country (or the world), or traveling for leisure purposes. Second, although our theoretical model identifies the important role of income (as a constraint), we have not access to this data at this point in time. Some surveys have collected information on income, but this data has not yet been harmonized nor crosschecked with other sources. Third, the analysis is restricted to the non-institutionalized population. Although older people in institutional and non-institutional settings may differ in their characteristics, and in their patterns of time use, we have information only on the non-institutional population. And finally, in this paper we focus on primary activities and ignore simultaneous, or so-called secondary activities, even though research has shown that for some type of activities, such as caring and watching television, data on the secondary activity is essential to produce accurate estimates of time use (Harvey 1993). Only some of the surveys analyzed in this paper have collected data on secondary activities, and this material was not ready to be analyzed at the time of writing this paper.

restricted. The absence of cross-national consistency, and the fact that employment status was self-declared, reduce the quality of this information. For example, some economically inactive respondents may have declared themselves as unable to work because of disability, while they may in fact not be able to get work, and some people may have declared themselves as housemaker rather than retired because they have not yet reached the legal retirement age.

RESULTS

The detailed results appear in Table A.1, while the summary results appear in Figure 2. The reader should note that in Figure 2 the scale of the y-axis varies for the various types of activities, and is therefore not comparable across activities (it is comparable across gender). Results are expressed as daily averages (based on an equal weighting of every day of the week). On average people age 45 and over devote around 2 to 3 hours per day to paid work, 11 hours to personal activities, 3 hours to passive activities, and 7 to 8 hours to other active leisure activities. There are non-negligible inter-country differences and inter-gender differences in patterns of time use, but the age profile reveals a remarkable similarity across countries and gender (see Figure 2).

[Figure 2 here]

Paid work

As expected, time spent on paid work declines sharply with age. And while the legal age at retirement is 65 in several countries, most of the decline appears at younger ages, thus confirming the patterns of early retirement observed in other studies. The results also reveal a much flatter age profile for women than for men, reflecting the lower labor force participation of women – even at young ages. For men, the highest allocation of time to paid work is observed in Japan, while the lowest is observed in the Netherlands. At age 45-54 years old, men in Japan devote 8.0 hours to paid work per day, as compared to 5.1 for men in the Netherlands.¹⁷ These figures include time spent working as well as time spent traveling to and from work, and time spent on coffee breaks, etc. Expressed per week, this is 56 hours in Japan and 36 in the Netherlands – an enormous difference. The results for the other countries fluctuate around 45 hours per day (41 in Canada, 43 in Germany, 45 in Italy, 46 in the USA, and 47 in Sweden). Finland and the UK represent

¹⁷ The Netherlands and the UK have 7-day diaries as compared to 1,2, or 3-day diaries in the other countries. In theory, this should not affect the comparability of the data.

intermediate cases, with respectively 37 hours and 39 hours per day of paid work (at age 45-54 years old). By the age of 75 and over, the inter-country differences have mostly vanished as very few people are still doing any paid work. The highest participation rate is observed for Italian men, with 10 percent of respondents age 75+ having reported doing some paid work on the diary day (results not shown here).

For women, the highest allocation of time to paid work is observed in Sweden – at least before the age of 65. Swedish women age 45-54 years old devote on average 4.9 hours per day to paid work. The lowest figure is observed in the Netherlands with 1.0 hour per day. By the age of 75, only women in the United States devote any significant amount of time to paid work, about 0.5 hours per day.

One of the key questions in the literature is the extent to which older adults gradually reduce their hours of work before retirement, or abruptly stop devoting time to paid work. Most of the previous studies having addressed this issue have used data about the employment status of respondents from labor force surveys, or data about the respondents' estimated number of hours worked during the week prior to a survey. The diaries offer an alternative way of examining this issue --- and likely a most accurate way.¹⁸ Results appear in Table 2 and show the distribution of respondents by the hours of work recorded on the diary day (based on properly weighted data). It should be noted that the category 'zero' includes respondents who have stopped working all together, and respondents who did not happen to devote any time to paid work on the designated diary day. As such this 'zero' category is not fully comparable to the percentage of economically inactive adults. As expected results show an increase with age in the 'zero' category, and a corresponding decrease in the category '6+' hours per day. The other intermediate columns capture part-time work, that is, a category which we would expect to attract an increasing percentage of respondents if the process of transition into

¹⁸ Since the estimates are based on single diary days, the estimates are likely to be subject to distortion at the individual level. For example, if an elderly person works only 8 hours per week but that all that work takes place on the diary day, then we are likely to overestimate the allocation of time of this individual. The argument used in the literature to validate the estimates based on diary data is that somebody else may be also working 8 hours per week, but happens not be working any hours on the designated diary day. On

retirement was done through a gradual reduction in the hours of paid work. Countries differ in the percentage of people found in these intermediate categories. However, in no countries do we observe a systematic increase in the relative weight of these part-time categories. The transition into retirement appears to be more abrupt than gradual – at least on the basis of this cross-sectional data.

[Table 2 here]

It should be noted that the distribution of respondents in Table 2 for the Netherlands and the United Kingdom looks very different from that of the other countries, with a much higher percentage of part-timers. While this different distribution may be capturing genuine inter-country differences, it is also due to the fact that the Dutch and British estimates are weekly averages based on 7-day diaries. The estimates are therefore computed on the basis of individual weekly diaries, while in the other countries the estimates are based on ‘pseudo’ weekly diaries based on the aggregation of daily diaries from different respondents.

From the age of 45, it is therefore some 5 to 8 hours per day that men used to devote to paid work and that eventually get reallocated to other categories of activities. The figures are lower for women, between 1 to 5 hours per day. The question that we now address is: which activities benefit from this reallocation of time away from paid work?

Active leisure activities

The active leisure category in Figure 2 encompasses unpaid work, housework, social and out-of-home leisure, hobbies and in-home leisure, and sport. It is in these categories that one would expect to pick up evidence of ‘active ageing’. The results for men indicate that part of the time that used to be devoted to paid work is indeed reallocated to active leisure – at least until the age of 74. Time spent to this activity slightly decreases at very old

average, these ‘errors’ are assumed to cancel out, and to lead to accurate weekly estimates at the aggregate level (Robinson 1977).

ages. The overall increase is however only of 2 hours per day --- that is, less than the corresponding decrease in time allocated to paid work. The pattern for women is very different, with a small increase in time devoted to active leisure between the age of 45-54 and 55-64, and a decrease from the age of 65. The starting point for women is however higher than that for men. By the age of 75, women still devote slightly more time to active leisure than men. The Netherlands is 'champion' when it comes to this type of activities with the largest amount of time devoted to this activity.

This broad category is broken down its smaller components in Table A.1. Results suggest different age profiles for the different categories of activities. In particular, the age profile of unpaid work and sports is relatively flat compared to that of routine and non-routine housework which shows an increase with age. Time spent on hobbies and in-home leisure also increases with age, while time spent on social and other out-of-home leisure activities shows an initial increase followed by a decrease at older ages. One thing that is therefore clear from these results is that there does not appear to be a substitution between paid and unpaid work. At older ages, people do not devote more time to unpaid or volunteer work. This result is at odds with results from other studies and that suggest an increase in unpaid work among the elderly (Chambre 1979) and a higher contribution of elderly to volunteer work, as compared to younger adults (Joshi et al 1998). This discrepancy is likely to be related to the type of data used, namely stylized versus diary data. Volunteer work being often performed on an irregular basis, it is unclear whether diaries are well suited to capture that type of activity. The general argument is that diaries lead to more accurate estimates of time use than stylized questions --- but it not clear if this argument holds for irregular work such as volunteer work.

Passive leisure activities

Time devoted to passive leisure activities, such as relaxing and watching television, shows a systematic increase with age, or roughly 2 to 3 hours per day between the age of 45-54 years old and 75 and over. The increase is particularly sharp for Japanese and Finnish men. As discussed earlier, we are however probably overestimating the amount

of time devoted to this activity in Japan, because of the way the data is coded. Interestingly, the cross-national differences are larger at older than at younger ages. By the age of 75, men and women in the Netherlands devote about 3 hours per day to passive leisure, as compared to 5 in Finland and 7 in Japan. The increasing incidence of health conditions that restrict daily activities, at older ages, likely explains part of the increase in time spent on passive leisure. However, the fact that this increase is much higher in some countries than in others, calls for other explanations, including preferences for passive versus active leisure, and related opportunities.

Personal activities

Time spent on personal activities also increases with age. This is not surprising as the increase with age in the prevalence of conditions that restrict daily activities is bound to require a greater allocation of time to personal activities such as bathing, dressing, and receiving medical care. The curves for all countries are in fact tightly clustered. Only the Italian curve stands out with a higher than average time spent on personal activities. A breakdown by sub-type of activities (results not reported here) suggests that the outlying position of Italy is mainly accounted by more time devoted to sleeping and eating – thus suggesting a cultural difference.¹⁹ In fact, Italian men spend more time on personal activities at all ages, as compared to the other countries. The situation is however different for Italian women whose allocation of time to personal activities at ages 45-54 years old is only slightly higher than in other countries, but is substantially higher at age 75 and over.

But the main point to notice here is that in all countries the increase in time spent on personal activities with age, although non-negligible, captures only part of the total time reallocated away from paid work. Passive leisure activities, and to a lesser extent active leisure activities, capture the other hours that used to be allocated to paid work.

¹⁹ As compared to their American counterparts, Italians age 45 and over devote about 1 hour more to sleep and 42 minutes more to eating.

CONCLUSION

Although time use research has a relatively long history (starting from the 19th century), most of the literature in that field had so far focused on working age adults. The 1960s multinational time use initiatives was restricted to respondents age 18 to 64 years old, and the original version of the harmonized time use archive of the Multinational Time use Study was restricted to the population age 20 to 60 years old.²⁰ And although other sources of data, such as labor force surveys, have allowed analyses of cross-national patterns of retirement, they have not allowed analyses of patterns of time use after retirement, and especially analyses of the allocation of time to non-work activities. As such, this paper fills an important gap in the literature.

Drawing on data from Canada, Finland, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States, results suggest a remarkable similarity across country in the age profile of activities. While time spent on paid work decreases with age, time spent on passive leisure activities, personal activities, and to a lesser extent active leisure activities, increases with age. A large fraction of time that used to be devoted to paid work appears therefore to be reallocated to passive type of activities (passive leisure and personal activities) rather than active leisure activities. In particular, we found no evidence of an increase in unpaid work at older ages.

We should however stress again that the reliance on cross-sectional data may be obscuring (even biasing) our results. Longitudinal conclusions can be inferred from the cross-sectional data *only if* there are no major cohort changes. We however know that it is not the case. The younger cohorts are on average more educated, wealthier, and healthier than the older cohorts, and it is possible that they will use their time differently than the current cohorts of elderly when they will reach old age. A second point to stress is that

²⁰ See for example the analyses reported in Gershuny (2000) and that are based on the population age 20 to 60 years old in the MTUS dataset.

our operationalization of passive and active leisure activities is not perfect. For instance, reading is classified as active leisure while watching television or listening to the radio is classified as passive leisure. Obviously, this classification does not take into account the quality of the activity, for example, the quality of the television program watched. As such, we are not properly capturing the possible contribution of each of these activities to the well-being of elderly people.

The use of diary data remains nevertheless a powerful instrument to measure changes in the allocation of time associated with ageing. And while there are currently much discussion surrounding the concept of active ageing, our results suggest that while part of the time that used to be allocated to paid work is reallocated to active leisure, part of it is also reallocated to passive leisure and personal activities. Whether or not this reallocation of time is due to individual constraints such as disability, or to macro-level constraints, such as lack of opportunities for productive activities for elderly, is not clear. It remains that the cross-national differences in the increase in time devoted to passive leisure at older ages do suggest that some macro-level factors are indeed at work in shaping the opportunities and constraints of older adults.

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Figure 1. Macro-micro model of time allocation

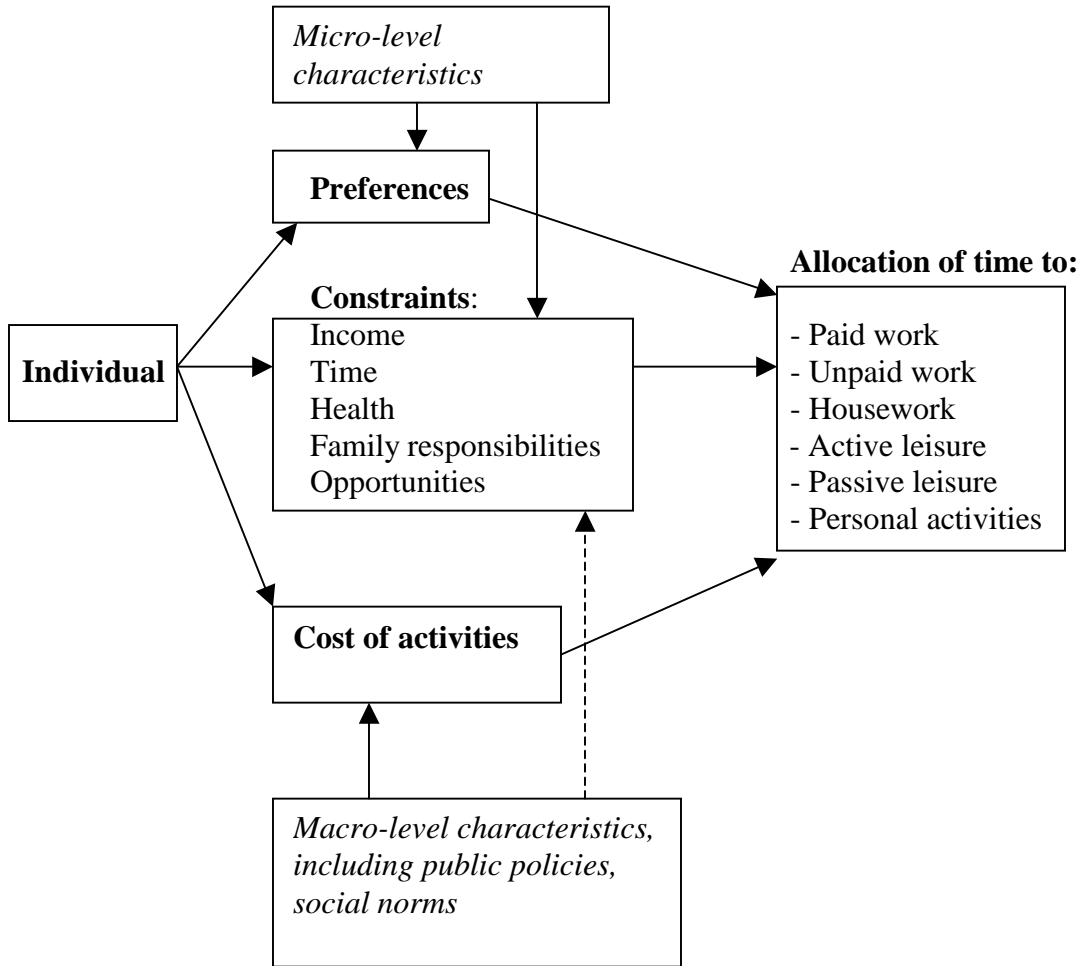


Figure 2. Patterns of time use by gender, age, country, and type of activity

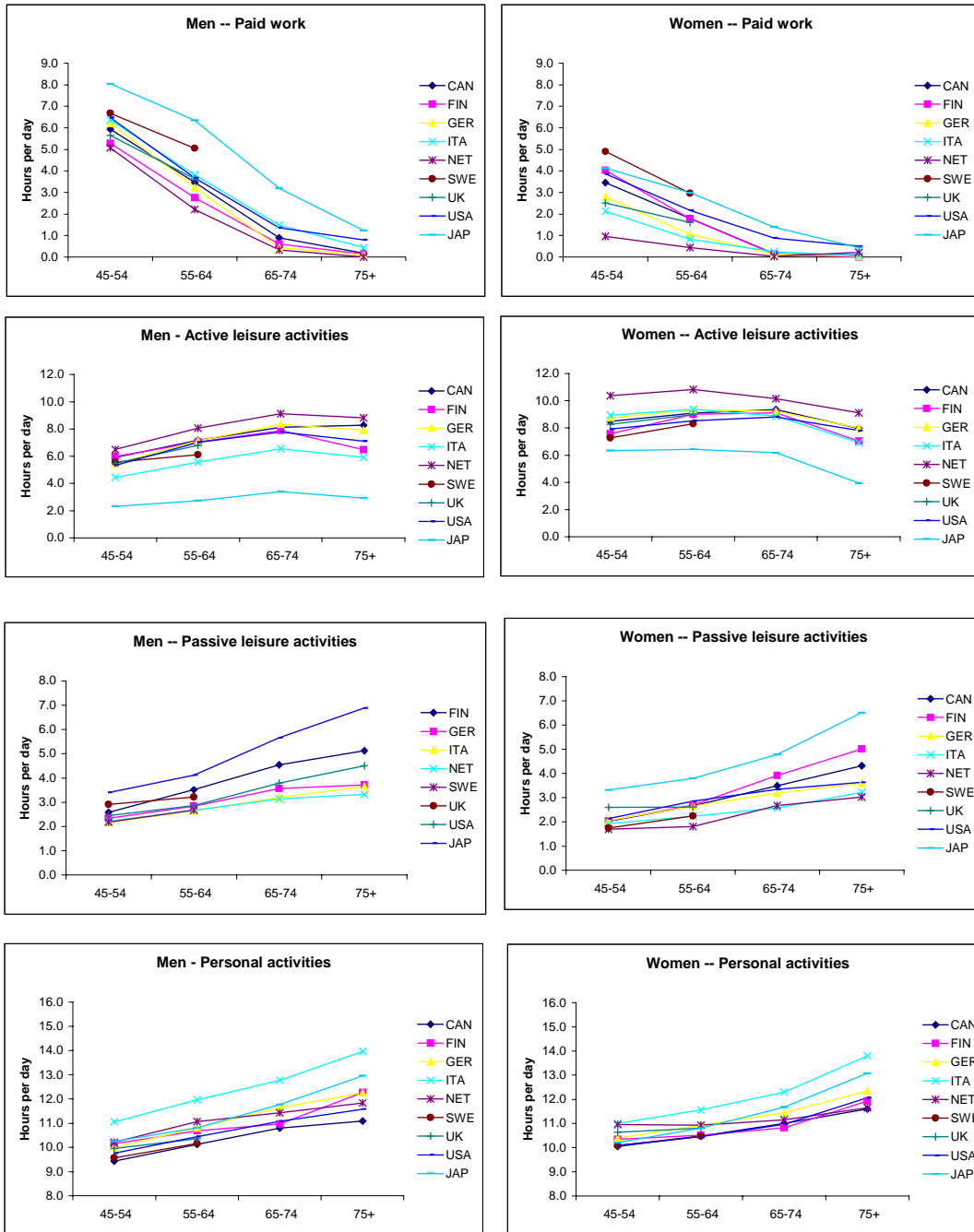


Table 2a. Distribution of respondents by the amount of time devoted to paid work (per day) by gender, country, and age

MEN

COUNTRY	AGE	0.0	0.1 - 1.9	2.0 - 3.9	4.0 - 5.9	6.0+	N
CANADA	45-54	36.5	2.0	3.9	2.5	55.0	592
	55-64	59.7	2.1	2.5	3.4	22.4	457
	65-74	87.0	1.4	1.6	0.8	9.3	347
	75+	93.2	5.4	0.0	0.0	1.3	148
FINLAND	45-54	37.2	3.9	2.0	3.4	53.5	934
	55-64	61.3	3.4	4.7	4.0	26.5	843
	65-74	84.6	4.2	4.1	3.6	3.4	260
	75+	97.9	0.7	0.0	0.0	1.4	139
GERMANY	45-54	30.0	3.9	2.1	3.0	60.7	1796
	55-64	60.3	3.8	1.9	2.6	31.4	1750
	65-74	89.0	4.3	1.5	1.6	3.6	1036
	75+	97.2	1.5	0.2	0.1	1.0	475
ITALY	45-54	25.7	1.3	2.6	7.1	63.3	2647
	55-64	50.6	2.3	2.8	6.4	37.9	2307
	65-74	77.2	1.6	3.8	4.0	13.4	1601
	75+	90.5	1.2	2.4	5.0	2.9	877
NETHERLANDS	45-54	14.4	5.2	8.1	22.7	49.6	196
	55-64	51.8	12.7	2.8	12.7	20.0	185
	65-74	70.7	23.3	4.3	1.2	0.6	145
	75+	94.2	5.8	0.0	0.0	0.0	50
SWEDEN	45-54	28.9	3.1	2.4	2.4	63.2	743
	55-64	42.3	3.8	1.6	4.4	48.0	580
	65-74	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	75+	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
UK *	45-54	9.6	7.4	5.3	18.1	59.6	94
	55-64	32.1	13.1	6.0	14.3	34.5	84
	65-74	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	75+	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
USA	45-54	29.6	3.4	1.5	2.4	63.2	298
	55-64	51.9	5.5	2.8	3.7	36.2	267
	65-74	81.2	0.6	1.9	1.9	14.4	173
	75+	90.1	1.2	1.3	0.0	7.5	87

Note: It was not possible to compute this data for Japan since we did not access to the micro-level data.

*: The data for the UK is unweighted.

Table 2b. Distribution of respondents by the amount of time devoted to paid work (per day) by gender, country, and age

WOMEN

COUNTRY	AGE	0.0	0.1 - 1.9	2.0 - 3.9	4.0 - 5.9	6.0+	N
CANADA	45-54	54.3	5.2	3.4	3.2	33.9	594
	55-64	75.6	1.8	1.8	3.1	17.7	477
	65-74	96.3	1.6	0.3	0.2	1.5	436
	75+	98.2	0.1	0.2	0.6	0.8	226
FINLAND	45-54	44.2	3.0	4.4	7.0	41.4	933
	55-64	71.1	4.3	2.6	3.8	18.2	854
	65-74	95.2	2.0	0.8	1.5	0.4	571
	75+	99.3	0.2	0.3	0.2	0.0	402
GERMANY	45-54	59.6	5.1	2.9	6.6	25.8	1858
	55-64	81.5	3.7	2.9	2.7	9.1	1831
	65-74	95.9	2.1	0.6	0.2	1.2	2001
	75+	97.8	1.3	0.4	0.4	0.0	746
ITALY	45-54	68.0	1.6	3.5	7.3	19.6	2542
	55-64	85.5	1.2	2.5	4.0	6.9	2543
	65-74	94.4	1.3	1.5	1.3	1.5	1956
	75+	98.7	0.2	0.3	0.1	0.6	1392
NETHERLANDS	45-54	53.6	28.3	9.6	3.6	4.9	198
	55-64	71.8	18.2	6.4	2.2	1.5	200
	65-74	82.8	17.2	0.0	0.0	0.0	228
	75+	80.3	16.7	0.0	0.0	3.0	52
SWEDEN	45-54	39.8	4.1	2.6	6.2	47.4	720
	55-64	59.0	3.0	2.6	8.3	27.1	595
	65-74	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	75+	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
UK *	45-54	31.0	17.2	21.6	17.2	12.9	116
	55-64	52.2	14.9	14.9	10.4	7.5	67
	65-74	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	75+	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
USA	45-54	49.4	3.3	4.9	4.8	37.7	309
	55-64	73.5	1.0	0.9	2.9	21.7	291
	65-74	86.6	0.4	2.0	2.1	9.0	227
	75+	91.1	2.5	0.0	2.5	3.9	114

*: The data for the UK is unweighted.

Table A.1. Typology of activities

Broad categories of activity	Sub-category	Name of variables ¹	Description
1. Paid work	1.1 Paid work	Av01	Paid work
		Av02	Paid work at home
		Av03	Second job
		Av05	Travel to/from work
2. Housework	2.1 Routine housework	Av06	Cooking, washing up
		Av07	Housework
	2.2 Non-routine housework	Av08	Odd jobs
		Av09	Gardening, pets
		Av10	Shopping
		Av12	Domestic travel
3. Active leisure	3.1 Unpaid work	Av11	Child care
		Av23	Civic duties
	3.2 Sport	Av19	Active sport
		Av21	Walks
	3.3 Out of home active leisure	Av17	Leisure travel
		Av18	Excursions
		Av22	Religious activities
		Av24	Cinema, theatre
		Av25	Dances, parties
		Av26	Social club
		Av27	Pub
		Av28	Restaurant
		Av29	Visiting friends
Av04		School/classes	
Av20	Passive/observer sport		
3.4 In-home active leisure	Av33	Study	
	Av34	Reading books	
	Av35	Reading papers, magazines	
	Av37	Conversation	
	Av38	Entertaining friends	
	Av39	Knitting sewing etc	
	Av40	Other hobbies and pastimes	
4. Passive leisure	4. Passive leisure	Av30	Listening to radio
		Av31	Television, video
		Av32	Listening to tapes etc
		Av36	Relaxing
5. Personal activity	5. Personal care	Av13	Dressing/toilet
		Av14	Personal services
		Av15	Meals, snacks
		Av16	Sleep

1- This is the name of the variables in the harmonized version of the surveys.

Supplementary notes about the Japanese categories of activities

The Japanese time use survey uses only 20 codes of activities. We recoded these categories as follows. The items in **bold** correspond to items that are misclassified according to our typology of activities. Following our typology, we are overestimating time spent on routine housework in Japan. We are also overestimating passive leisure (several of the items should instead be classified as in-home or out-of-home active leisure), and are consequently underestimating time spent on in-home or out-of-home active leisure activities. We added the category ‘other’ to our-of-home leisure. While this is an arbitrary decision, we aimed at partly compensating for the underestimation of this activity. The category ‘other’ represents around 30 minutes per day.

Broad categories	Sub-categories	Japanese codes	Description
Paid work	Paid work	Work (#5)	
Housework	Routine housework	Commuting to and from school or work (#4) Housekeeping (#7)	Cooking, cleaning, caring for family members other than child, keeping the family account
	Non-routine housework	Shopping (#10)	
Active leisure	Unpaid work	Childcare (#9)	
		Nursing (#8)	Helping family or related person
	Social activities (#17)	Voluntary activities or other social activities to promote social welfare	
Out-of-home leisure	Sport	Sports (#16)	Seeing friends, talking with neighbors
		Social life (#18)	Travel other than for commuting to and from school or work
	Travel (#11)		
In-home leisure	In-home leisure	Other (#20)	Activities not classified elsewhere
		Hobbies and amusements (#15)	Seeing a movie or a play, playing or listening to music, caring for pets, gardening, playing games, meals with friends
Passive leisure	Passive leisure	Schoolwork (#6)	Studying at school and homework
		Studies and research (#14)	Study other than those related to work and school
		Watching TV, listening to radio (#12)	Watching TV, listening to radio, reading newspapers or magazines
Personal activities	Personal activities	Rest and relaxation (#13)	Conversation with family, office colleagues, rest and relaxation
		Sleep (#1)	

Personal care (#2)
Meals (#3)
Medical examination (#19)

Washing, bathing, dressing
Staying in bed for illness, seeing a doctor for
treatment

Source: Adapted from Mikami (1999).

Table A.2. Patterns of time use by country, gender, and age

COUNTRY	GENDER	AGE GR.	PAID	UNPAID	R.HOUSE	NR. HOUSE	SPORT	SOCIAL	HOBBIES	PASSIVE	PERS.	TOTAL	N
CANADA	MAN	45-54	5.9	0.3	0.5	1.7	0.5	2.0	1.0	2.7	9.4	24.0	592
		55-64	3.5	0.4	0.7	1.9	0.4	2.4	1.2	3.2	10.1	24.0	457
		65-74	0.9	0.5	0.8	2.0	0.5	2.6	1.7	4.2	10.8	24.0	347
		75+	0.2	0.3	1.1	2.2	0.5	2.5	1.7	4.5	11.1	24.0	148
	WOMAN	45-54	3.5	0.5	2.4	1.7	0.3	2.3	1.3	2.0	10.0	24.0	594
		55-64	1.8	0.6	2.6	1.4	0.3	2.7	1.4	2.7	10.5	24.0	477
		65-74	0.2	0.4	2.6	1.6	0.3	2.4	2.0	3.5	11.0	24.0	436
		75+	0.1	0.1	2.2	1.1	0.2	2.2	2.2	4.3	11.6	24.0	226
FINLAND	MAN	45-54	5.3	0.2	0.7	1.7	0.6	1.7	1.1	2.6	10.1	24.0	934
		55-64	2.8	0.1	0.8	2.1	0.7	1.7	1.6	3.5	10.7	24.0	843
		65-74	0.6	0.2	1.0	2.0	1.0	1.7	2.0	4.5	11.0	24.0	260
		75+	0.1	0.2	1.3	1.3	0.6	1.7	1.5	5.1	12.3	24.0	139
	WOMAN	45-54	4.0	0.1	2.7	1.3	0.4	1.7	1.4	2.0	10.3	24.0	933
		55-64	1.8	0.1	3.1	1.4	0.5	2.0	1.8	2.7	10.5	24.0	854
		65-74	0.1	0.1	3.0	1.4	0.4	2.0	2.2	3.9	10.8	24.0	571
		75+	0.0	0.0	2.3	0.9	0.4	1.6	1.8	5.0	11.9	24.0	402
GERMANY	MAN	45-54	6.2	0.4	0.6	1.9	0.4	1.4	0.8	2.3	10.0	24.0	1796
		55-64	3.2	0.4	0.9	2.5	0.6	1.7	1.1	2.8	10.8	24.0	1750
		65-74	0.4	0.5	1.1	2.8	0.6	1.8	1.6	3.6	11.6	24.0	1036
		75+	0.1	0.4	1.5	2.5	0.5	1.5	1.6	3.7	12.3	24.0	475
	WOMAN	45-54	2.8	0.4	3.2	2.3	0.3	1.7	0.8	2.1	10.4	24.0	1858
		55-64	1.1	0.4	3.5	2.4	0.4	1.7	1.0	2.7	10.9	24.0	1831
		65-74	0.1	0.4	3.2	2.2	0.4	2.0	1.1	3.2	11.4	24.0	2001
		75+	0.0	0.3	2.8	1.8	0.3	1.6	1.2	3.6	12.3	24.0	746

COUNTRY	GENDER	AGE GR.	PAID	UNPAID	R.HOUSE	NR. HOUSE	SPORT	SOCIAL	HOBBIES	PASSIVE	PERS.	TOTAL	N
ITALY	MAN	45-54	6.4	0.3	0.3	1.0	0.6	1.5	0.7	2.2	11.0	24.0	2467
		55-64	3.8	0.3	0.5	1.5	0.8	1.5	0.9	2.6	12.0	24.0	2307
		65-74	1.5	0.4	0.7	1.8	0.9	1.6	1.1	3.2	12.8	24.0	1601
		75+	0.5	0.3	0.7	1.2	1.1	1.6	1.1	3.7	14.0	24.0	877
	WOMAN	45-54	2.1	0.2	5.5	1.3	0.2	1.0	0.6	1.9	11.0	24.0	2542
		55-64	0.8	0.3	5.5	1.4	0.3	1.2	0.8	2.2	11.6	24.0	2543
		65-74	0.2	0.3	4.8	1.2	0.3	1.3	0.9	2.6	12.3	24.0	1956
		75+	0.1	0.1	3.3	0.9	0.3	1.4	1.0	3.2	13.8	24.0	1392
NETHERLANDS	MAN	45-54	5.1	0.3	0.6	1.5	0.3	2.0	1.7	2.2	10.2	24.0	196
		55-64	2.2	0.4	0.8	1.7	0.4	2.5	2.2	2.7	11.1	24.0	185
		65-74	0.3	0.3	1.2	2.0	0.5	2.5	2.7	3.1	11.4	24.0	145
		75+	0.0	0.1	1.4	1.7	0.7	2.3	2.6	3.3	11.8	24.0	50
	WOMAN	45-54	1.0	0.3	3.6	1.7	0.2	2.5	2.1	1.7	11.0	24.0	198
		55-64	0.5	0.3	3.4	1.6	0.3	2.8	2.5	1.8	10.9	24.0	200
		65-74	0.0	0.2	3.0	1.4	0.2	2.6	2.7	2.7	11.2	24.0	228
		75+	0.2	0.1	3.0	1.3	0.1	2.2	2.5	3.0	11.6	24.0	52
SWEDEN	MAN	45-54	6.7	0.3	1.0	1.7	0.3	1.4	1.0	2.2	9.6	24.0	743
		55-64	5.1	0.1	1.1	1.9	0.4	1.4	1.2	2.7	10.2	24.0	580
	WOMAN	45-54	4.9	0.2	2.4	1.7	0.3	1.6	1.2	1.7	10.1	24.0	720
		55-64	3.0	0.0	2.9	1.7	0.3	1.9	1.5	2.3	10.5	24.0	595
UK *	MAN	45-54	5.6	0.1	0.7	1.6	0.3	1.9	0.8	2.9	10.0	24.0	94
		55-64	3.6	0.2	1.0	2.2	0.3	2.2	1.0	3.2	10.4	24.0	84
	WOMAN	45-54	2.5	0.2	2.9	1.6	0.2	2.4	0.9	2.6	10.6	24.0	116
		55-64	1.6	0.2	3.3	1.9	0.1	2.1	1.3	2.6	10.8	24.0	67

COUNTRY	GENDER	AGE GR.	PAID	UNPAID	R.HOUSE	NR. HOUSE	SPORT	SOCIAL	HOBBIES	PASSIVE	PERS.	TOTAL	N
USA	MAN	45-54	6.5	0.1	0.7	1.4	0.2	2.0	0.8	2.4	9.8	24.0	298
		55-64	3.7	0.2	1.1	1.6	0.4	2.4	1.3	2.9	10.4	24.0	267
		65-74	1.4	0.1	1.2	2.1	0.4	2.2	1.7	3.8	11.1	24.0	173
		75+	0.8	0.1	1.6	1.5	0.4	1.9	1.6	4.5	11.6	24.0	87
	WOMAN	45-54	3.9	0.4	2.4	1.6	0.2	2.3	1.0	2.1	10.1	24.0	309
		55-64	2.2	0.3	2.8	1.6	0.2	2.2	1.4	2.8	10.5	24.0	291
		65-74	0.9	0.3	2.8	1.6	0.3	2.2	1.6	3.3	11.0	24.0	227
		75+	0.5	0.2	2.7	1.2	0.2	2.0	1.5	3.6	12.1	24.0	114
JAPAN **	MEN	45-54	8.0	0.1	0.1	0.2	0.2	1.1	0.6	3.4	10.2	24.0	9662
		55-64	6.3	0.1	0.2	0.2	0.2	1.2	0.8	4.1	10.8	24.0	7492
		65-74	3.2	0.2	0.5	0.2	0.3	1.2	1.1	5.7	11.8	24.0	5042
		75+	1.2	0.2	0.5	0.2	0.2	1.0	0.9	6.9	13.0	24.0	2424
	WOMEN	45-54	4.1	0.2	3.6	0.7	0.1	1.2	0.5	3.3	10.2	24.0	9775
		55-64	3.0	0.4	3.4	0.7	0.1	1.2	0.7	3.8	10.8	24.0	7962
		65-74	1.4	0.3	3.3	0.6	0.1	1.1	0.7	4.8	11.7	24.0	6177
		75+	0.4	0.1	1.9	0.3	0.1	0.9	0.5	6.5	13.1	24.0	4204

* The results for the UK is based on unweighted data. ** The results for Japan is based on published data.