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Patterns of Time use of People Age 55 to 64 Years Old: Some Cross-National Comparisons

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PATTERNS OF TIME USE OF PEOPLE AGE 55 TO 64 YEARS OLD: SOME CROSS-NATIONAL COMPARISONS

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Abstract

Objectives. This paper examines the patterns of time use of adults age 55 to 64 years old in six countries: Austria, Canada, Finland, Italy, Sweden, and the United States. It examines the discontinuity in daily activities by employment status and gender.

Methods. The paper uses nationally representative samples from time use surveys carried out in each country. We compute aggregate patterns of time use by employment status and gender for seven categories of activities: personal activities, paid work, unpaid work, housework, social leisure, active leisure, and passive leisure. We also compute dissimilarity indices to measure the degree of discontinuity in patterns of time use by employment status and gender.

Results. We find that the pattern of time use of non-employed adults resemble that of full-time employed people on their non-workdays. We also find evidence that the transition out of the labor force is associated with a convergence in pattern of time use of men and women in the USA, Canada, and Finland, but not in other countries.

Discussion. There appears to be continuities in the way people use their time as they grow older and retire from the labor force. We however raise the possibility that these results may hold only for the 'young-old'. Decreasing health and physical endurance at older ages may introduce significant discontinuities in patterns of time at a later stage of the life-cycle. Our future work will examine the impact of health and daily limitation on patterns of time use at older ages.

This paper examines the patterns of time use of adults age 55 to 64 years old in six countries: Austria, Canada, Finland, Italy, Sweden, and the United States. On the basis of time use surveys carried out in these countries, we compare the daily patterns of time use of adults by gender and employment status. We ask three main questions: (1) How different are patterns of time use of economically active and non-economically active adults age 55 to 64 years old? In the transition out of the labor force, how is time that used to be spent on paid work reallocated? Is it reallocated to unpaid work, volunteer work, and active leisure? Or is it mainly reallocated to passive leisure activities? (2) How different are patterns of time use of men and women? Is the transition out of the labor force associated with a convergence or divergence in patterns of time use of men and women? And (3), How different or similar are patterns of time use of adults age 55 to 64 years old in the United States compared to some other advanced industrialized countries? Does the transition out of the labor force

have the same impact on patterns of time use in the United States as in the other countries?

Much attention has been paid in recent years to the timing of retirement (Ekertdt, De Viney, 1993; Hayward, Hardy, and Grady, 1989; Mutchler et al., 1997; Quinn and Burkhauser, 1994), to paid and unpaid activities after retirement (Herz, 1995), and more generally, to patterns of activities at older ages (Robinson, Werner, and Godbey, 1997). As argued below, the related literature has focused mainly on the United States, and has mainly relied on stylized estimates of patterns of activities, based on the frequency of specific activities over a 1-month or 12-month period. In only a few cases have diaries been used to systematically examines the patterns of time use of older adults.

Our motivation for this paper is five-fold. First, the last decades have been characterized by a trend towards earlier retirement, in the context of increasing life expectancy. Adults age 60 in the six countries analyzed in this paper could be expected to live a further 20.1 years in 1995 (average for both sexes), up from 17.5 years in 1960. At the same time, the labor force participation rate of men age 55-59 years old in these countries has decreased from 86 percent in 1960 to 70 percent in 1995. The result is an unmistakable increase in the number of 'leisure' years for the newly retired.[i]

Second, there is a very limited knowledge of the ways older adults use their time (Hill, Herzog, Juster, 1999). We know that, on aggregate, older adults tend to devote less time to paid work and to physically demanding leisure activities (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 tend to spend more time alone (Larson, Zuzanek, Mannell, 1985). It is however important to note that this empirical evidence has largely been drawn from studies of very small non-nationally representative samples of respondents, often of less than 200 respondents (see for example Hooker and Ventis, 1984; Larson, Zuzanek, and Mannell, 1985; Hoyt et al., 1980; and Palmore, 1979). This empirical evidence has moreover been largely drawn from studies that have relied on stylized questions to establish patterns of time use of older adults. Studies by Musick, Herzog, and House (1999) and by Kerzog et al. (1992), using data from the *American's Changing Lives* survey are examples of studies based on stylized estimates of time use. In contrast, in very few studies have respondents been asked to keep diaries in order to record their daily activities. The studies by Hooker and Ventis (1984), Klumb and Baltes (1999), Moss and Lawton (1982), Robinson and Godbey (1997), and Ujimoto (1988, 1991) are the exception. Larson et al. (1985) used a variant of the diary in relying on pagers (experimental sampling method). These methodological differences are important since diaries have been shown to result in more accurate estimates of patterns of time use than stylized questions (Robinson and Godbey, 1997; Juster and Stafford, 1991).

Third, our knowledge of cross-national differences or similarities in the patterns

of time use of older adults is also very limited. The seminal work directed by A. Szalai on time use patterns in twelve countries included respondents up to the age of 64 years old. But no chapter in the edited volume (Szalai, 1972) was devoted to aging or retirement. The only systematic cross-national analysis of the daily lives of middle-age and older adults is found in Lingsom (1991, 1995) in which patterns of time use of women in Canada, Denmark, Hungary, Netherlands, Norway, UK, and USA are compared (using time diaries). Time use surveys have a long tradition, but have rarely been used to compare across countries how aging and retirement are experienced on a daily basis (Little, 1984; Ujimoto, 1990). We obviously have cross-national data on labor force participation rates, but we do not have data on the ways people use their time once they retire from the labor market. We do not know if people substitute work by work-like activities, such as unpaid and volunteer work, and moreover we do not know if the patterns observed in the United States are unique or representative of the behavior of older adults in other advanced industrialized countries. There are in fact compelling reasons to expect systematic cross-national differences in the ways older adults use their time. For one thing, we obviously know that there are marked differences across countries in the timing of retirement (Quinn and Smeeding, 1997). But even for people of similar employment status, strong country-differences in patterns of time use may be expected. The economic conditions of older adults vary considerably across countries, in terms of average income, poverty rate, and state subsidies (Smeeding, 1998). Opportunities to purchase leisure activities, or to consume highly subsidized leisure activities, may therefore be expected to vary significantly across countries. On the other hand, if one assumes some continuity in the patterns of time use over a lifetime (see below), then one may expect continuities in the ranking of countries. This hypothesis has not been tested in the literature.

Fourth, this paper is also motivated by the debate concerning the continuity or discontinuity in patterns of activities at older ages (see for example McClelland, 1982; Hoyt et al., 1980; Hooker and Ventis, 1984). For instance, while there is some evidence that the patterns of time use of older adults is based on leisure activities carried out at younger ages (Kelly, 1997), other studies conclude that people reduce their membership in voluntary groups and volunteering as they grow older (Chambré, 1993), and moreover that older adults do not 'compensate for discontinuing their paid work and unpaid child-rearing activities by substituting helping activities and home-based unpaid work' (Herzog et al., 1989: s137). Furthermore, while there is evidence that older adults spend more time on personal activities (Lingsom, 1995, Jones, 1990), more time alone (Larson, Zuzanek, Mannell, 1985), more time at home and on family-related activities (Kelly, 1997), and less time on physically demanding activities (Cutler and Hendricks, 1990), this evidence pertains to older adults and not to the 'young old'. In the context of early retirement and increasing life expectancies, it is unclear the extent to which discontinuities or continuities in patterns of time use by employment status are observed among the young-old.

Finally, there is also the issue of continuity or discontinuity between genders. The literature is again inconclusive, reporting some convergence between men and women in patterns of time use of older adults (Lingsom, 1991), but also no evidence of increasing similarity between men's and women's activity patterns in later life (Herzog et al., 1989).

Our paper is therefore an attempt at documenting patterns of time use of 'young-old' adults around the time of retirement. Our use of large nationally representative samples, and of diary data, is expected to address some of the limitations of the current literature.

METHODS

Data- Data used in this paper comes from diaries of activities collected as part of time budget surveys. We used data from six time budget surveys: Austria (1992), Canada (1992), Finland (1987), Italy (1989), Sweden (1990/1), and the United States (1985).[ii] In contrast to other surveys used in the literature and reviewed above, all of these surveys relied on diaries to capture the daily activities of respondents, and not on 'stylized' estimates. In all the surveys used in this paper, respondents were asked to keep a one- or two-day diary. In most cases, the data collection was moreover spread throughout the 12 months of the year in order to capture seasonal variations and to provide accurate yearly estimates. The exceptions are Austria and Sweden. Most surveys collected diaries through home visits. Other modes of data collection, namely recall phone interview and mail back, were also used. The literature suggests that these different modes of data collection do not affect the comparability of the data (Robinson and Godbey, 1997). Table 1 provides further technical details about the surveys used in this paper.

[Table 1 here]

These surveys were all recoded using consistent background variables and activity variables across all six surveys.

Samples - In our analysis, we focus on adults age 55 to 64 years old. Our choice was motivated by two main factors. First, this is the age group characterized by the largest range of changes in the patterns of time use, especially due to retirement from the labor market. Across our six countries, the percentage of economically active people age 55 to 64 years old ranges from 80 percent for Swedish men to 13 percent for Austrian women. Second, adults age 55 to 64 years old may be assumed to have, on average, good health (or at least to be in better health than older adults). The changes in patterns of time use observed at that age are therefore unlikely to be mainly driven by declining physical endurance and the onset of limitation of normal activities.

In the paper, we distinguish three employment states: full-time employed (at least 30 hours per week), part-time employed (1 to 29 hours per week), and non-employed.[iii] These employment states are based on a recall question about the main activity carried out during the week prior to the survey.[iv] The non-employed category is unfortunately a very unsatisfactory one

as it captures different types of respondents: respondents who have taken early retirement because they are independently wealthy or have been offered attractive pre-retirement packages from their employers, respondents who are unemployed, and respondents who have withdrawn from the labor market because of being ill, unable, or uninterested in finding employment. The implication is that these different types of non-employed people may have very different patterns of time use because of their different intrinsic characteristics, lifestyles, or health. Unfortunately, the surveys used in this paper do not allow us at this time to distinguish between these different categories of 'non-employed'.[v]

In breakdown of our sample by employment status appears in Table 2. For comparative purposes, this data is compared to similar data from the International Labor Office (based on labor force surveys). Overall, the labor force participation rates from the two sources are very similar. The only exception is the Canadian time use data that under-estimates the ILO labor force data. The use of the population weights, as provided by Statistics Canada, partly corrects this problem. [vi]

[Table 2 here]

Categories of activities- In the paper we use a 7-category typology of activities to characterize patterns of time use: 1. Paid work, 2. Unpaid work, 3. Personal activities, 4. Housework, 5. Social leisure, 6. Active leisure, and 7. Passive leisure. These categories were derived from 40 harmonized categories which are consistent across all surveys analyzed here. They are summarized in Table 3.

[Table 3 here]

Data analysis- The method used to analyze the time use data is relatively straight forward. Using the micro-data, we construct 'synthetic' weeks by weighting the diaries to get an equal number of diaries for every day of the week (Pentland, Harvey, and Lawton, 1999). The assumption is that while data at the individual level may not accurately capture the individuals' allocation of time, it does so at the aggregate level, when we compare sub-groups of people who share similar demographic, social, and economic characteristics (Robinson, 1977). In our paper, we also provide estimates for workdays and non-workdays; the later being defined as days during which economically active respondents reported having spent 0 minutes on paid work. This method was considered more accurate than a simple weekday versus weekend distinction (because of changes in the nature of work, many workers and employees may be working on weekends and may take their days off during weekdays).

Our measure of discontinuity is the sum of the difference between time spent on the seven categories of activities (in percentage) for any two sub-groups. We computed the sum of the absolute values in order to get a non-zero value. The index of dissimilarity ranges from 0 (perfectly identical patterns of time use) to 200 (perfectly dissimilar patterns of time use).[vii] It is an indicator of the amount of time that would need to be reallocated in order to result in identical

patterns of time use. For example, an index of 50 suggests that 25 percent (by relying on absolute values we are double counting the differences) of someone's time would need to be reallocated to other activities in order to replicate somebody else's pattern of time use. We use this index to compare the pattern of time use of adults of different employment states, and to compare the pattern of time use of men and women.

While we are confident about the degree of cross-national comparability of the micro-data, it is affected by three main limitations. First, the data only provides information about the nature of the activity and the time spent on the activity. It does not provide information about the context of the activity, especially with whom was the activity carried out, and where.[viii] This means that we will not be able to estimate the percentage of time spent alone or with friends, nor will we be able to estimate the percentage of time spent at home or outside the home. Second, we are relying on 'primary' activities, that is, on the main activity carried out by respondents at any time during the day. We are not considering secondary activities that were carried out at the same time than the primary activities. Such an omission may lead to an underestimation of time spent on passive leisure (for example if a respondent carries out a primary activity while watching television). Finally, we are relying here on cross-sectional data while attempting to estimate the impact of the transition to out of the labor force. Unfortunately, longitudinal time use surveys are not available. In our future work, we hope to remedy many of these shortcomings.

RESULTS

Age pattern of time use- We start the analysis by examining the patterns of time use by age and gender in order to provide a first overview of the ways people use their time, and in order to locate adults age 55-64 years old in a life-cycle perspective. The variation in patterns of time use by age and gender appears in Figure 1 for the United States and Italy (similar figures for the other countries examined in this paper have been reported elsewhere, Gauthier and Smeeding, 1999).

[Figure 1 here]

The large shaded area at the very bottom of the graphs represents time spent on personal activities that amounts to between 10 to 13 hours per day. This area is relatively stable with age, until the age of 65 when it increases rapidly. In general, Italian men and women devote more time to personal activities than Americans, a finding that will be further investigated later in the analysis. Moving up the graphs, the next activity is housework, which captures from few minutes to nearly 3 hours per day. The variation by age is small, but the gender difference is large, especially in the case of Italy.

Time spent on paid work appears next (black area in the figures). Not surprisingly, this is the type of activity that displays most variation with age, especially after the age of 55. It is also an activity that displays very large gender variation, especially in the case of Italy. Overall, between the age of 25 and 60, men devote 5 to 6 hours per day to paid employment, that is, between 35 and 43 hours per week (time spent

traveling to and from work is included here, as well as coffee breaks, and time spent waiting before work). For women, the averages are much smaller, of 2 to 4 hours per day.[ix] Time spent on unpaid work appears just above paid work in the graphs, in a thin white area. Time spent on this category of activity is very small, the equivalent of few minutes per day.[x] The variation by age is also minimal. In particular, there is no evidence that older adults devote more time to this category of activity than younger ones (in the case of the USA the reverse is in fact observed). As will be discussed later, this is an important finding as it suggests that older adults do not substitute unpaid work for paid work.

The remainder of the graphs displays time spent on leisure activities: active, social, and passive. Time spent on active leisure appears to be minimum during working ages (25-55 years old) and to slightly increase after the age of 55. Time spent on social activities, which amounts to 1 to 2 hours per day is relatively constant by age. Time spent on passive leisure appears at the very top of the graphs and displays a marked increase after the age of 55. This is particularly noticeable for American men.

These graphs represent averages across all employment states. In the remainder of this paper, we will restrict the analysis to adults age 55 to 64 years old, and will further breakdown the data by employment status.

Patterns of time use by employment status- Data in Table 4 reports the patterns of time use for all six countries by employment status. We also report the coefficient of variation by activity and employment status.

[Table 4 here]

Time spent on personal activities differs systematically across types of employment, but appears to display the least amount of variation across countries and genders (as captured by the coefficient of variation). Time spent on personal activities varies between 9.7 for full-time employed Canadian men and 12.7 for non-employed Italian men. Not surprisingly, full-time employed people spend less time on this activity than non-employed ones. At the other extreme, time spent on housework and unpaid work displays the most variation. For housework, the variation mainly captures gender differences. Even among full-time employed people, women spend considerably more time doing housework than men. For unpaid work, the large coefficient of variation refers to the variance in very small amounts of time. Across all the groups represented here, full-time employed Canadian women appear to be devoting the largest amount of time to unpaid work, an average of 0.7 hours per day, or nearly 5 hours per week. Of particular importance here is the fact that part-time and non-employed people do not spend more time on unpaid work as compared to full-time employed people. Canada, Italy, and the United States are the exception (although the differences between full-time employed and non-employed remains very small).

Time spent on active, social, and passive leisure activities displays moderate variation across our sub-groups, with passive leisure displaying the least. On average non-employed people appear to

be spending more time on these types of leisure activities as compared to their full-time employed counterparts.

Despite the variation by gender, country, and employment status, one important point to stress is that there is an obvious stability in the country ranking in that countries that rank high, or low, on one specific type of activity tend to do so across all employment states. This country stability may be measured by rank order correlation for each type of activity across all three employment states. Results appear in Table 5.

[Table 5 here]

With the exception of paid and unpaid work, the coefficients are very high, between .7 and .9. Country rank-order coefficients appear especially high in the case of housework, personal activities, and social leisure. Overall, country specificities (such as the large amount of time devoted to housework by Italian women) appear to supersede differences by employment status, thus suggesting some continuity in the country-level pattern of time use.

Workdays versus non-workdays- The above results are averages for the 7 days of the week. We however know that people's use of time varies significantly between workdays and non-workdays, especially for full-time employed people. This difference is important. Later in this paper we will examine the extent to which the pattern of time use of non-employed people resembles that of full-time employed people on their non-workdays. Data for full-time employed people appears in Table 6.

[Table 6 here]

As expected, full-time employed people devote more time to personal activities during their non-workdays, the equivalent of an additional 2 hours for men, and 1.2 hours for women. During their non-workdays, full-time employed men and women also devote more time to housework, active, social, and passive leisure activities. In Canada and the USA, full-time employed people during their non-workdays devote more time to unpaid work (as compare to their workdays). This is not the case in the other countries.

Despite these differences, the country rank order coefficients (Table 5) are high especially in the case of housework, active leisure, and social leisure, thus suggesting once again some continuity in the country-level differences in patterns of time use.

Discontinuity by employment status- One of the main objectives of this paper is to assess how time that used to be devoted to paid work is reallocated once people retire from the labor market. Since we are here relying on cross-national data, we can only infer information about this reallocation process by comparing people of different employment states. As seen earlier, full-time employed people devote as much as 5 to 6 hours per day to paid work. How is this time reallocated? Looking back at Table 4 and comparing across employment states, one realizes that this these hours appear to be reallocated to all activities. In absolute term, time spent on all activities increases when comparing full-time employed and non-employed adults. Since the actual

number of hours reallocated vary between men and women, and across countries (because of differences in time spent on paid work), it is more meaningful to examine the relative structure of non-work time rather than the structure of the total time. In other words, by examining the structure of non-work time, we can assess the extent to which the reallocation of time that used to be devoted to paid work is done equally across all non-work activities (therefore leaving unchanged the pattern of non-work time) or the extent to which it is done by giving preference to some activities over others.

Results appearing in Table 7 reveal that the reallocation of time is not done proportionally over all activities. For one thing, time spent on personal time is not increased proportionally. Instead, the share of personal activities decreases (as a proportion of non-work time) when we compare full-time employed and non-employed people. In general, the share of housework, active and passive leisure activities increases, while the share of social leisure and unpaid work remains constant.

[Table 7 here]

In order to measure the degree of continuity or discontinuity in patterns of time use by employment status, we computed an index based on the differences in the proportion of time devoted to each non-work activity. We compared the patterns of non-work time of non-employed people to three other patterns: those of full-time employed people, full-time employed people on their workdays, and full-time on their non-workdays. We also compare the patterns of time use of full-time and part-time employed people. Results appear in Table 8.

[Table 8 here]

The index of dissimilarity is much larger when we compare the pattern of time use of non-employed people with that of full-time employed people on their workdays than on their non-work days. On average, the pattern of time use of non-employed people looks very similar to that of full-time employed on their non-workdays. The only exceptions are Austrian and American men.

We mentioned earlier that the share of non-work time devoted to personal activities decreases when comparing full-time and non-employed people. In order to make sure that the above results were not driven solely by personal activities, we recomputed the index of dissimilarity on the basis of non-work and non-personal time. Results (not shown here) do not alter our conclusion. The reallocation of time that used to be spent on paid work significantly modifies the structure of time only when the comparison is made between non-employed people and full-time employed people on their workdays.

Discontinuity by gender- The second main dimension that we set to examine in this paper is the gender dimension. More particularly, to what extent do the differences in pattern of time use of men and women increase or decrease after retiring from the labor market? To answer this question, we proceed as above in computing an index of dissimilarity. This time the index is based on the difference in patterns of time use of men and women for each

employment status. Results appear in Table 9.

[Table 9 here]

Before examining the patterns across employment states, it is worth pointing to some major cross-national differences. Among full-time employed people, differences between men and women in the patterns of non-work time appear to be smallest in Sweden and the USA, and largest in Italy and Austria.

Turning now to the patterns across employment states, on average, the magnitude of the gender gap appears to be the same across all employment states, of the order of 26-28. A close look at the country-level results however reveals significant differences within and across countries. While the difference in patterns of time use of full-time employed men and women on their non-workdays is smaller than that on their workdays in Austria and Sweden, the opposite is observed in Finland, Italy, and the United States. In these later cases, the pattern of time use of men and women looks most dissimilar on now-workdays than on workdays. The comparison in the gender gap of full-time employed people and non-employed people also suggests that the transition out of the labor force is associated with a decrease in the gender gap in Austria, Canada, and Finland, but by an increase in Italy, Sweden, and the United States. On the other hand, a different conclusion emerges if the comparison is made between non-employed people and full-time employed people on their non-workdays. In the United States, Canada, and Finland, the patterns of time use of non-employed men and women look more alike than those of full-time employed people on their non-workdays.

DISCUSSION

We asked three main questions at the onset of this paper. First, how do people reallocate their time when moving out of the labor force? Do we observe major discontinuities or do we instead observe continuities in patterns of time use when we compare employed and non-employed people? Second, how different are patterns of time use of men and women? And is the transition to retirement associated with a convergence or divergence in patterns of time use of men and women? And third, how different or typical are patterns of time use of older adults in the United States?

With regard to the first question, it is obvious that the pattern of time use of non-employed people looks very different from that of full-time employed people when the weekly averages are considered. Non-employed people enjoys on average as much as 6 hours per day of ‘extra’ time --- that is, time that used to be devoted to paid work. However, as argued in this paper, this comparison is misleading. When we instead compare the patterns of time use of full-time employed people on their non-workday with the pattern of time use of not-employed people, the differences appear to be very small. Only for American men are differences more pronounced. On average, full-time employed people on their non-work day and not-employed people spend their time in a very similar way. Non-employed people tend however to spend slightly more time on passive leisure activities, and less time on active leisure

activities. This result is significant as it lends support for the continuity thesis rather than the discontinuity thesis. In other words, there is no evidence that in the transition to retirement, people radically change their pattern of time use. Instead, they appear to be adopting the patterns of their non-work days when they were still full-time employed.

Our analyses furthermore found no evidence that in the transition to retirement people substitute unpaid work for paid work. Non-employed people do not spend more time on unpaid work than do full-time employed people. In fact, in the United States and Canada an *opposite* pattern was found in that people spending most time on unpaid work were full-time employed people on their non-workdays.

Our results are in line with those of other authors in lending support to the continuity thesis. The distinction between workday and non-workday appears to be an essential element to bring into light this process of continuity.

With regard to differences between men and women, Herzog et al. (1989) concluded that there was no evidence that men and women's patterns of time use looked more similar in later life. Our results corroborate this conclusion for the United States. In the United States --- as in Italy and Sweden --- the gender gap was found to be larger among non-employed than full-time employed people. However, an opposite pattern was found in Austria, Canada, and Finland. But, when we compare non-employed people with full-time employed people on their non-workdays, a different conclusion emerged, namely that in the United States, Canada, and Finland, the pattern of time use of non-employed men and women look more alike than that of full-time employed people on their non-workdays. Again, the distinction between workdays and non-workdays appears to be important.

Finally, what can be said about cross-national differences in the transition to retirement and its related changes in patterns of time use? As mentioned earlier, there are obvious differences in the timing of retirement across countries, thus resulting in cross-national differences in the composition of the population by employment status. However, what emerges from our analysis is that there is a strong correlation in country differences in patterns of time use by employment status. In other words, countries that devote more, or less, time to specific activities tend to do so across all employment states. Country-level differences appear to supersede employment-level differences when it comes to the general pattern of time use. Such a result had not brought into light in other studies and suggests that conclusions reached on the basis of single country studies may not be generalized to other countries.

These results are only the beginning of a larger project. One avenue that we will shortly be exploring is time spent in civic activities, and how patterns of time use vary by health status, economic status, and other covariates. It is indeed possible that the continuities in patterns of time use observed for the 'young-old' by gender and work status may not be found at older ages when declining health and declining physical endurance may restrict people's daily activities. We

also plan to analyze trends over time in patterns of time use of older adults. The existence of time budget surveys dating from the 1960s offers an invaluable source of empirical material to analyze historical trends, and to indirectly assess the impact of increasing longevity and increasingly higher level of education attainment on the patterns of time use of older adults.

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ENDNOTES

[i] Data on the life expectancy at age 60 comes from the United Nations *Demographic Yearbook* (various issues). Data on the labor force participation rates comes from the ILO *Yearbook of Labor Statistics* (various issues). The trend in labor force participation for women looks very different than that for men between 1960 and 1995 as it corresponds to the massive and rapid entry of women in the labor force. This rapid entry of women in the labor force masked the trend towards early retirement. For this reason, only the data for men is reported in this paragraph.

[ii] All these surveys are available from the archive of the Multinational Time Use Study (MTUS). In most cases, these surveys are the most recent ones available. The 1998 Canadian data has just been released but has not yet been added to the archive, and the 1995 American survey has not yet been made publicly available. The archived and harmonized version of these surveys however covered only the population age 20 to 60 years old. Our contribution to the archive was to retrieve the diaries of older respondents from the original versions of the surveys and to recode these diaries in order to integrate them in the harmonized versions.

[iii] The cutoff points used to define full-time and part-time work are the same in all countries. Only in Italy was the information on the number of hours worked not available. Our definition of full-time and part-time work in Italy is based on self-definition.

[iv] In theory, it would be possible to establish a respondent's labor force status on the basis of her/his diary data. However, since we are mainly relying on a one-day dairy, rather than a 7-day one, there is a high likelihood that some economically active individuals will have filled out their diary on a day during which they were not at work. Relying on this information would lead to a misclassification of the population by employment status.

[v] We are currently developing health and disability variables that should allow us to distinguish between some sub-categories of non-employed in future analyses.

[vi] A further data validation exercise would be to compare the number of hours worked per week with data collected as part of labor force surveys. Unfortunately, the data available usually refers to specific categories of employment. No data is available on all categories of employment.

[vii] In essence, the index of dissimilarity double counts the difference because of the use of absolute values. This is why the maximum value is 200 instead of 100. An alternative index of dissimilarity is the index computed from the Euclidean distance. This alternative index relies on the same computation but squares the differences rather than taking their absolute value.

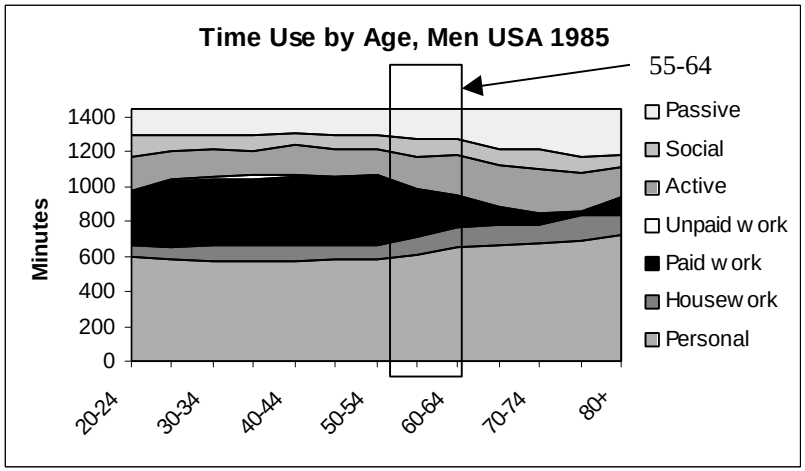
[viii] Most surveys have collected data on 'with whom' and 'where', but the data has not yet been archived and harmonized at this time.

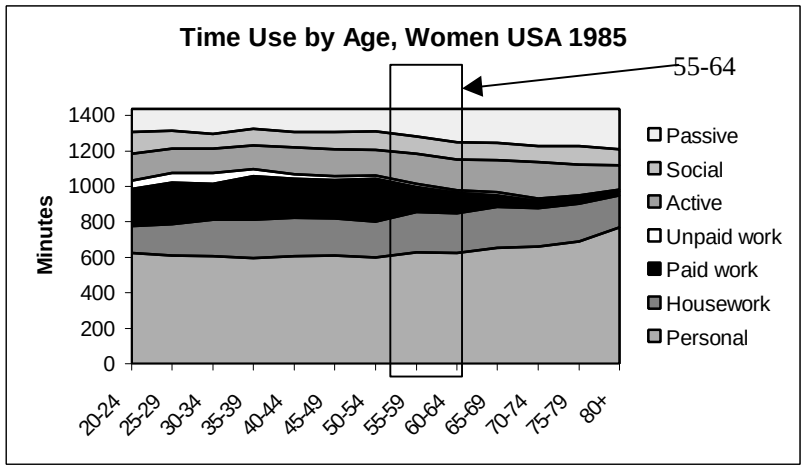
[ix] These results being based on cross-sectional data, they do not fully capture

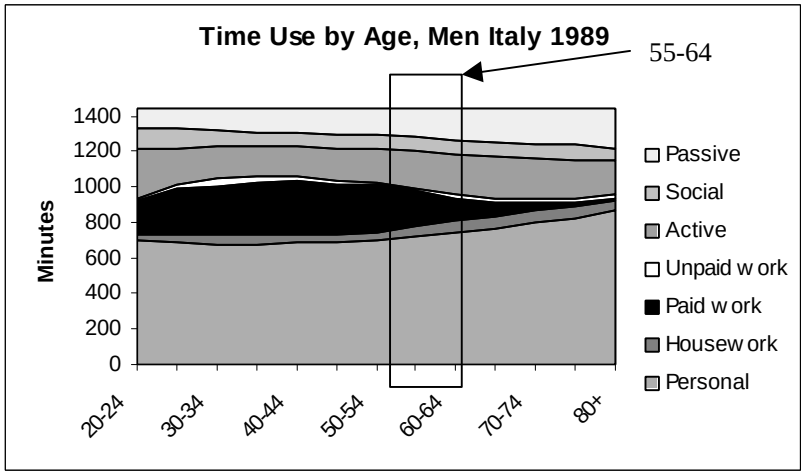
some of the changes occurring at the cohort level, for instance among young Italian women who appears to joining the labor force in greater proportion than the previous generation of women.

[x] This result is in line with that of other studies. For example, estimates from the *Americans' Changing Lives* Survey suggest that men and women age 55 to 64 years old in the United States spend annually 241 hours on childcare, volunteer work, and help. This is the equivalent of 0.7 hours per day. While this figure exceeds that obtained in our time use surveys, recall and stylized estimates are known to result in inflated estimates of activities carried out on an irregular basis or for short durations.

FIGURE 1: Patterns of time use by age and gender, USA and Italy







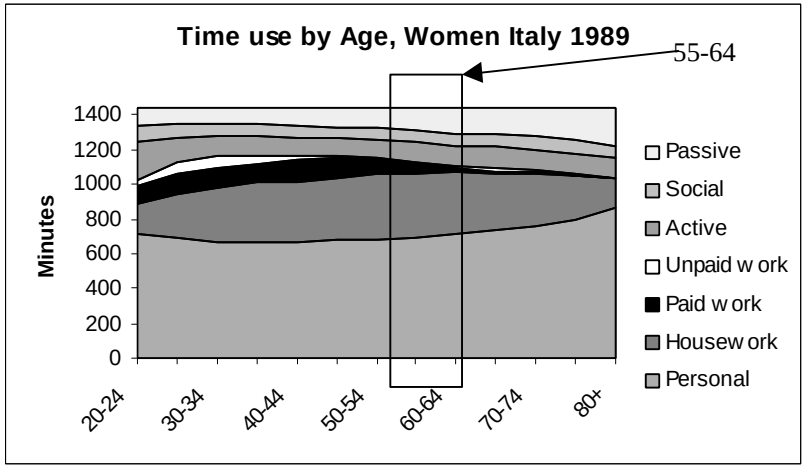


Table 1. Time use surveys

Country	Title of the survey	Year of the survey	Age range (1)	N of case (2)	Response rate (3)	Type of diary and mode of data collection	Survey period
Austria	Zeitverwendung (Time Use) (Micro census survey)	1992	10+	25,233	47%	1-day diary (self and house)	2 months (March and September)
Canada	Time Use, (General Social Survey, Cycle 7)	1992	15+	9,815	77%	1-day diary (phone)	12 months
Finland	Time use Survey	1987	10+	5,224	74%	1-day (self-completed)	12 months
Italy	L'Uso del Tempo in Italia (The use of time in Italy)	1988/9	3+	13,729	75%	3-day diary (self-completed)	12 months (June 1988 to May 1989)
Sweden	Time use survey	1990/1	20-64	3,943	75%	2-day diary	2 months (September 1990 and May 1991)
United States	American's Use of Time Project	1985	18+	5,358	55%	1-day diary (mail, phone, or face-to-face interview)	12 months

(1) Total age range surveyed. (2) Total number of cases. (3) Response rate for the total sample.

Source: Fisher (1999).

Table 2. Adults 55 to 64 years old by employment status: time use surveys vs. ILO

Gender	Country	Full-time employed	Part-time employed	Non-employed	Total	LFP from time use surveys	LFP from ILO/ labor force surveys
Men	Austria 1992	32.8	0.2	67.1	100.0	32.9	38.4
	Canada 1992[1]	46.4	2.1	51.5	100.0	48.5	62.0
	Finland 1987	41.5	5.0	53.5	100.0	46.5	47.3
	Italy 1989	42.3	3.8	53.9	100.0	46.1	52.0
	Sweden 1990	73.0	8.1	18.9	100.0	81.1	75.5
	USA 1985	45.1	11.8	43.1	100.0	56.9	67.2
Women	Austria 1992	10.2	2.6	87.2	100.0	12.8	14.2
	Canada 1992[1]	20.8	4.9	74.3	100.0	25.7	36.4
	Finland 1987	36.5	6.2	57.3	100.0	42.7	38.9
	Italy 1989	12.8	1.5	85.7	100.0	14.3	15.0
	Sweden 1990	41.1	29.0	29.9	100.0	70.1	66.2
	USA 1985	29.9	11.6	58.5	100.0	41.5	41.7

1- The labor force participation rates based on the weighted figures are: 50.1 for men and 29.4 for women.

LFP: Labor force participation rate (as a percentage of the population of age 55 to 64 years old).

Table 3. Consistent time use categories for all surveys

BROAD CATEGORY	CATEGORIES	NAME	DESCRIPTION
NECESSARY/ MAINTENANCE	1. PERSONAL NEEDS	AV13	DRESSING/TOILET
		AV16	SLEEP
		AV15	MEALS, SNACKS
		AV14	PERSONAL SERVICES *
	2. ROUTINE HOUSEWORK & PERSONAL SERVICES	AV7	HOUSEWORK
		AV6	COOKING, WASHING UP
		AV12	DOMESTIC TRAVEL
		AV10	SHOPPING
PRODUCTIVE	3. PAID WORK & EDUCATION	AV1	PAID WORK
		AV2	PAIDWORK AT HOME
		AV3	SECOND JOB
		AV5	TRAVEL TO/FROM WORK
	4. UNPAID WORK	AV11	CHILD CARE *
		AV23	CIVIC DUTIES *
ACTIVE AND CULTURAL LEISURE	5. ACTIVE & CULTURAL LEISURE (INCLUDING HOBBIES)	AV19	ACTIVE SPORT
		AV21	WALKS
		AV24	CINEMA, THEATRE *
		AV18	EXCURSIONS *
		AV34	READING BOOKS
		AV35	READING PAPERS, MAGAZINES
		AV39	KNITTING SEWING ETC
		AV40	OTHER HOBBIES AND PASTIMES *
		AV8	ODDJOBS
		AV9	GARDENING, PETS
		AV17	LEISURE TRAVEL
		AV4	SCHOOL/CLASSES
		AV33	STUDY *
SOCIAL LEISURE	6. SOCIAL LEISURE	AV26	SOCIAL CLUB
		AV27	PUB
		AV29	VISITING FRIENDS
		AV38	ENTERTAINING FRIENDS
		AV37	CONVERSATION
		AV28	RESTAURANT
		AV25	DANCES, PARTIES
		AV22	RELIGIOUS ACTIVITIES
PASSIVE LEISURE	7. PASSIVE LEISURE	AV20	PASSIVE SPORT
		AV30	LISTENING TO RADIO
		AV31	TELEVISION, VIDEO
		AV32	LISTENING TO TAPES ETC
		AV36	RELAXING

- AV11 (Childcare): includes playing, reading, teaching, helping children.
- AV14 (Personal services): includes personal care services (e.g. hairdresser), medical and dental services.
- AV18 (Excursions): includes museums, art galleries, special occasional lectures, pleasure drives, sightseeing, travel for sports/hobbies.
- AV23 (Civic duties): includes professional/union/general organized activity, political/civic activity, child/youth/family organizations, fraternal/social organizations, volunteer work/helping.
- AV24 (Cinema, theater): includes pop music, fairs, concerts, movies, films, opera, ballet, drama.
- AV33 (Study): homework, course/career/self-development.
- AV40 (Other hobbies and pastimes): includes leisure/special interest class, hobbies, domestic home crafts, music, theatre, dance, games, cards, arcades, letters and mail.

Table 4. Patterns of time use of adults age 55-64 years old by employment status, gender, and country (in hours per day --- weekly averages)

Full-time employed

	Ost-M	Can-M	Fin-M	Ita-M	Swe-M	USA-M	Ost-W	Can-W	Fin-W	Ita-W	Swe-W	USA-W	Mean	C.V.
Personal	10.7	9.7	10.1	11.6	9.9	9.8	10.5	10.1	10.0	11.0	10.2	10.2	10.3	5.3
Paid work	7.1	6.6	6.0	5.3	6.3	6.0	4.7	6.1	4.6	3.7	4.7	5.0	5.5	18.3
Housework	0.7	0.9	1.1	0.6	1.7	1.3	4.1	2.4	3.3	4.8	3.2	2.8	2.3	62.7
Unpaid work	0.2	0.3	0.1	0.2	0.1	0.3	0.2	0.7	0.1	0.2	0.0	0.3	0.2	76.9
Active	2.3	2.4	3.2	2.9	2.8	3.1	1.9	1.6	2.7	1.7	2.6	2.3	2.5	20.6
Social	0.8	1.6	0.9	1.1	0.8	1.4	0.7	1.2	1.2	0.9	1.1	1.4	1.1	24.8
Passive	2.2	2.5	2.6	2.3	2.4	2.2	1.9	2.0	2.1	1.9	2.2	2.0	2.2	10.8
Total	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	
N														

Part-time employed

	Ost-M	Can-M	Fin-M	Ita-M	Swe-M	USA-M	Ost-W	Can-W	Fin-W	Ita-W	Swe-W	USA-W	Mean	C.V.
Personal	11.9	9.8	10.8	12.2	10.2	10.6	11.5	9.8	10.5	11.3	10.6	10.2	10.8	7.3
Paid work	5.2	3.6	2.9	3.1	4.1	4.2	3.2	4.6	2.6	1.2	3.0	3.5	3.4	30.3
Housework	3.5	1.7	1.8	1.3	1.8	1.6	4.7	3.4	4.2	5.5	3.9	3.3	3.0	45.1
Unpaid work	0.0	0.0	0.2	0.3	0.2	0.3	0.2	0.5	0.1	0.3	0.1	0.1	0.2	77.4
Active	1.0	4.4	4.0	3.1	3.8	2.1	1.7	2.0	3.3	2.5	3.1	3.1	2.8	35.8
Social	0.3	1.7	1.0	1.4	1.0	2.4	0.8	1.9	1.6	0.8	1.3	2.1	1.4	44.7
Passive	2.2	2.7	3.3	2.7	3.0	2.9	2.0	1.9	1.8	2.4	2.1	1.8	2.4	21.8
Total	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	
N														

Not employed

	Ost-M	Can-M	Fin-M	Ita-M	Swe-M	USA-M	Ost-W	Can-W	Fin-W	Ita-W	Swe-W	USA-W	Mean	C.V.
Personal	12.3	10.6	11.1	12.7	11.2	11.1	11.6	10.7	10.9	11.8	10.9	10.6	11.3	6.1
Paid work	1.3	0.4	0.2	0.8	0.6	0.4	0.5	0.1	0.1	0.2	0.1	0.0	0.4	96.7
Housework	1.5	1.8	2.0	1.2	2.6	2.7	5.3	3.8	4.0	6.3	4.6	4.6	3.4	48.3
Unpaid work	0.2	0.6	0.2	0.4	0.0	0.2	0.3	0.6	0.1	0.3	0.1	0.4	0.3	71.0
Active	4.5	4.5	5.0	4.3	4.7	4.2	2.7	3.6	4.2	1.9	3.9	3.1	3.9	23.4
Social	1.2	2.0	1.2	1.5	1.0	1.7	1.1	2.3	1.6	1.2	1.8	1.8	1.5	26.8
Passive	3.0	4.1	4.4	3.1	3.8	3.7	2.5	3.0	3.2	2.4	2.7	3.6	3.3	19.3
Total	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	
N														

Ost: Austria, Can: Canada, Fin: Finland, Ita: Italy, Swe: Sweden, USA: United States, M: Men, W: Women. C.V.: coefficient of variation.

Table 5. Rank order correlation (Spearman's rho) by type of activity and employment status (adults age 55 to 64 years old)[1]

Activity	Non-employed vs. part-time employed	Non-employed vs. full-time employed	Part-time employed vs. full-time employed	Full-time employed on workdays vs. full-time employed on non-workdays
Personal	.900**	.713**	.764**	.559
Paid work	.406	.539	.823**	----
Housework	.762**	.972**	.811**	.951**
Unpaid work	.274	.905**	.311	.252
Active	.587*	.734**	.559	.755**
Social	.748**	.830**	.903**	.692*
Passive	.552	.796**	.716**	.378

** significant at the .01 level (2-tailed), * significant at the .05 level (2-tailed)

1- The rank order correlation was computed on the basis of the average time spent on each activity by country and gender. Respective ranking for the three employment states was compared.

Table 6. Patterns of time use of full-time employed adults age 55-64 years old by type of day, gender, and country (in percentage of total daily time)

Full-time employed: workdays

	Ost-M	Can-M	Fin-M	Ita-M	Swe-M	USA-M	Ost-W	Can-W	Fin-W	Ita-W	Swe-W	USA-W	Mean	C.V.
Personal	10.1	9.0	9.7	11.1	9.3	9.2	10.1	9.9	9.5	10.5	9.3	9.6	9.8	6.2
Paid work	9.2	9.3	8.2	7.7	8.8	8.6	6.8	8.4	7.0	6.5	8.2	8.7	8.1	11.4
Housework	0.5	0.7	1.0	0.5	1.2	1.0	3.6	1.9	2.9	4.0	2.4	1.9	1.8	67.8
Unpaid work	0.1	0.2	0.1	0.2	0.1	0.0	0.1	0.6	0.1	0.1	0.1	0.0	0.1	107.0
Active	1.5	1.7	2.2	1.9	2.0	2.0	1.4	1.0	2.0	1.0	1.8	1.2	1.6	25.7
Social	0.6	0.9	0.7	0.7	0.6	1.0	0.5	0.7	0.9	0.5	0.8	1.0	0.7	23.9
Passive	2.0	2.3	2.3	2.0	1.9	2.3	1.5	1.7	1.7	1.5	1.5	1.6	1.8	16.6
Total	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	
N														

Full-time employed: non-workdays

	Ost-M	Can-M	Fin-M	Ita-M	Swe-M	USA-M	Ost-W	Can-W	Fin-W	Ita-W	Swe-W	USA-W	Mean	C.V.
Personal	12.4	11.4	11.5	12.6	11.3	11.3	11.5	10.4	10.9	11.6	11.3	10.9	11.4	5.3
Paid work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	----
Housework	1.6	1.4	1.6	0.9	2.9	1.9	5.2	3.9	4.2	5.9	4.3	4.1	3.2	52.5
Unpaid work	0.2	0.6	0.1	0.3	0.1	0.8	0.3	0.9	0.2	0.2	0.0	0.7	0.4	80.7
Active	5.2	4.3	5.9	5.1	4.9	5.6	3.2	3.5	4.2	2.6	3.8	3.7	4.3	23.6
Social	1.6	3.2	1.3	2.0	1.4	2.5	1.3	2.5	1.9	1.4	1.5	1.9	1.9	31.6
Passive	3.1	3.1	3.6	3.1	3.5	1.9	2.6	2.9	2.8	2.3	3.1	2.7	2.9	16.9
Total	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	
N														

Table 7. Pattern of non-work time of adults age 55-64 years old by employment status, gender, and country (in percentage)

Full-time employed

	Ost-M	Can-M	Fin-M	Ita-M	Swe-M	USA-M	Ost-W	Can-W	Fin-W	Ita-W	Swe-W	USA-W
Personal	63	56	56	62	56	55	54	56	51	54	53	53
Paid work												
Housework	4	5	6	3	10	7	21	13	17	24	17	15
Unpaid work	1	2	1	1	1	1	1	4	1	1	0	2
Active	14	14	18	15	16	17	10	9	14	8	14	12
Social	5	9	5	6	5	8	4	6	6	4	6	7
Passive	13	14	14	12	13	12	10	11	11	9	11	11
Total	100	100	100	100	100	100	100	100	100	100	100	100

Part-time employed

	Ost-M	Can-M	Fin-M	Ita-M	Swe-M	USA-M	Ost-W	Can-W	Fin-W	Ita-W	Swe-W	USA-W
Personal	63	48	51	58	51	53	55	50	49	50	50	49
Paid work												
Housework	18	8	9	6	9	8	22	17	20	24	18	16
Unpaid work	0	0	1	1	1	1	1	3	1	1	0	1
Active	5	22	19	15	19	11	8	10	15	11	15	15
Social	2	8	5	6	5	12	4	10	7	4	6	10
Passive	11	13	16	13	15	14	9	10	8	10	10	9
Total	100	100	100	100	100	100	100	100	100	100	100	100

Non-employed

	Ost-M	Can-M	Fin-M	Ita-M	Swe-M	USA-M	Ost-W	Can-W	Fin-W	Ita-W	Swe-W	USA-W
Personal	54	45	47	55	48	47	49	45	45	50	45	44
Paid work												
Housework	7	8	8	5	11	11	23	16	17	26	19	19
Unpaid work	1	3	1	2	0	1	1	3	0	1	0	1
Active	20	19	21	18	20	18	11	15	17	8	16	13
Social	5	8	5	7	4	7	5	10	7	5	8	7
Passive	13	17	18	14	16	16	11	12	13	10	11	15
Total	100	100	100	100	100	100	100	100	100	100	100	100

Full-time employed on workdays

	Ost-M	Can-M	Fin-M	Ita-M	Swe-M	USA-M	Ost-W	Can-W	Fin-W	Ita-W	Swe-W	USA-W
Personal	69	61	61	68	61	60	58	63	56	60	59	63
Paid work												
Housework	3	5	6	3	8	6	21	12	17	23	15	12
Unpaid work	1	1	1	1	1	0	1	4	0	1	0	0
Active	10	12	14	11	13	13	8	6	12	6	11	8
Social	4	6	4	4	4	6	3	4	5	3	5	7
Passive	13	15	14	12	12	15	9	11	10	8	9	10
Total	100	100	100	100	100	100	100	100	100	100	100	100

Full-time employed on non-workdays

	Ost-M	Can-M	Fin-M	Ita-M	Swe-M	USA-M	Ost-W	Can-W	Fin-W	Ita-W	Swe-W	USA-W
Personal	52	47	48	53	47	47	48	43	45	48	47	46
Paid work	0	0	0	0	0	0	0	0	0	0	0	0
Housework	7	6	7	4	12	8	22	16	17	25	18	17
Unpaid work	1	3	1	1	0	3	1	4	1	1	0	3
Active	21	18	25	21	20	23	13	14	17	11	16	16
Social	7	13	5	8	6	10	5	10	8	6	6	8
Passive	13	13	15	13	15	8	11	12	11	10	13	11
Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 8. Index of employment dissimilarity[1] by gender and country: not employed versus full-time employed

Gender	Country	Full-time employed vs. non-employed	Full-time employed on workdays vs. non-employed	Full-time employed on non-workdays vs. non-employed	Full-time employed vs. part-time employed
Men	Austria	53	22	73	a)
	Canada	46	67	36	83
	Finland	26	31	14	29
	Italy	43	60	18	22
	Sweden	13	22	16	34
	USA	33	46	59	20
Women	Austria	36	52	26	19
	Canada	47	69	15	60
	Finland	11	24	10	5
	Italy	28	58	17	34
	Sweden	17	22	13	15
	USA	37	68	13	35

Notes: a): too few cases to compute. 1- see text for an explanation of the dissimilarity index.

Table 9. Index of gender dissimilarity[1] by country, and employment status (based on pattern on non-work time)

Country	Full-time	Part-time	Not employed	Full-time on workdays	Full-time on non-workdays
Austria	34	a)	33	36	30
Canada	21	31	18	23	23
Finland	25	27	21	23	26
Italy	41	35	42	39	42
Sweden	16	22	23	16	14
USA	16	24	17	19	25
Average[2]	26	28	26	26	27

Notes: a): too few cases to compute. 1- see text for an explanation of the dissimilarity index. 2- Simple average: sum across countries divided by six.

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