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*Time Use Surveys:
a Review of their Aims, Methods,
and Results*

CERTAIN SOCIAL ACTIVITIES are highly institutionalized and are the focus of intense control. Individuals who try to shirk them or do not carry them out in the prescribed amounts of time leave themselves open to codified sanctions. It is relatively easy to memorize schedules and durations for this kind of activity because it follows from interaction among several categories of social actors, some of whom are in a position to subordinate others; employers have this kind of power over employees, schoolteachers over pupils, the clergy over regular churchgoers, etc. Other activities, such as sleep, household tasks, occupational tasks not directly controlled by employers or customers and most leisure activities, are institutionalized to a much lesser degree. Time use surveys are what make possible a certain objectification of these less institutionalized social activities and their durations. Such surveys are therefore in fact the only means of attaining a complete overview of the content of time in daily life.

Time use surveys make use of a specific type of questionnaire device, the activity diary, inspired by travel logs. These diaries take the form of a day-by-day account of respondent's life activities. (The preferred time framework for time use surveys is the 24-hour day, though some use the week, which considerably reduces the amount of attention to given less institutionalized activities. There is also an intermediate variety where the inquiry bears on two days, one weekday and one weekend day.) Each day is presented as a series of *episodes*; the hour in which one episode ends is also the one in which the next begins. The diary is usually open-ended: respondents note their activities in terms they choose themselves. The wording or designations they use are later coded in accordance with an activity *nomenclature*. In this respect, time use surveys are similar to household budget surveys; both make use of a diary

and postcoding. They differ in that the “time budget” is the same for everyone (24 hours for a daily diary) and all human activities of course fit into time, whereas they do not all necessarily have a monetary dimension — the temporal accounting unit is much more universal than the monetary one (Szalai 1966; for a sociological history of the conventions of by which people orient themselves in time, see Zerubavel 1981). Generally, the minimum unit or “grain” of time in a daily diary is five or ten minutes, which corresponds to one line on the printed form. In weekly diaries the minimum unit is a quarter of an hour or a half an hour. Oral questioning, usually done by telephone, does not imply adopting any minimum threshold, but respondents seldom describe their activities minute by minute. In an interview bearing on one day, the usual time grain is ten minutes.

Reducing the infinite diversity of names or designations for activities or expenditures to a finite list of entries in a nomenclature implies adopting certain arbitrary but more or less socially constructed viewpoints that always reveal the implicit or explicit purposes of the particular investigation. Should an episode noted with the phrase “read the Bible” go under “Religion” or “Reading”? Is the restaurant bill paid after a dinner with friends a food or leisure expenditure? In these examples, the choice of one or the other coding attests that nomenclaturists are observing the social world through certain “glasses”; some are particularly interested in religion, others in literacy, etc. Double description coding is prohibitively unwieldy. Keeping a record of the designations used by respondents makes it possible to recode later using different nomenclatures, and opens the way to virtually ethnographic analysis, but it can also lead to identifying respondents by name, which goes against the promise of anonymity usually made to persons willing to donate some of their time to survey interviewers.

In accounts of the sequence of activities that make up a given day, the time slot and length of time of each episode are specified in reference to contiguous episodes. The activity diary is literally a memory device, making it possible to organize recall around activities whose time-structuring function is particularly strong: the time the train leaves, the time work starts, the time the TV series is on. This in turn considerably reduces the overestimation bias affecting stated durations of more desirable activities and the underestimation bias for least loved activities, because the inquiry is not focused on any particular activity and the respondent does not have to calculate activity durations. Survey comparability over time and space depends on the degree of observation and

analysis method convergence, namely the adopting of activity nomenclatures with the same or very similar characteristics.

The aim of the present article is to characterize the survey and analysis tradition organized around the specific device of the activity diary. The first part retraces the main stages in the development of that tradition – initial development of time use surveys in the Soviet Union of the 1920s; standardization of these surveys in the 1960s through an international program coordinated by Alexandre Szalai; and generalization to the majority of industrialized countries over the 1990s – and identifies recent methodological developments. The second part examines the three main issues where time use surveys seem to have become irreplaceable: debates on the leisure civilization; knowledge about work schedules; and changes in gender roles and intrafamilial coordination of collective activities.

1. *The rise of an investigative formula and its limitations*

The invention of activity diaries

The family monographs first realized in the 1840s by Frédéric Le Play and later his disciples (Le Play 1855; *Société d'économie sociale* 1857-1930) focused on budgets established by means of a standardized grid and including a quantitative account of work time for both paid work and the production of household-consumed goods and services. These surveys thus provided estimates of the respective volumes of occupational and domestic work. Monograph comparisons were primarily qualitative; there were no calculated averages and no notion of representativeness. Households that managed to save or extend their farmland or escape employee status thanks to their energetic labor, either paid or domestic, were presented as exemplary. Durations were usually measured in terms of number of workdays per year; there was no indication of the length of each day.

According to Jiri Zusanek, the idea of including all human activities in time budgets dates from the late nineteenth century and is owed to the Englishman F. Giddings (Zusanek 1980, p. 2). The first surveys questioning respondents on the social uses they made of their time served the moralizing, reforming purposes of English philanthropists (Pember-Reeves 1913) and their American counterparts (Bevans 1913): members of the working classes were asked about their

associative activities, visits to coffee houses or pubs, and religious service attendance.

It was in the young Soviet Union that daily life was first observed for planning purposes using systematic time use surveys. The first sizeable surveys using activity diaries were conducted in the context of the NEP (New Economic Policy), launched in 1921. A major aim of these surveys was to measure the temporal weight of housework, a category of activity that the regime perceived as archaic and planned to reduce by organizing collective services and cultural activities. In 1922, the economist S. G. Strumilin began organizing time use surveys using the diary method. The 1923-24 survey covered 625 respondents spread across twelve Russian cities. The interviews collected information on time use during a weekday and a Sunday (Strumilin 1925; Zuzanek 1980, pp. 177-180). The surveys were interrupted in 1936 and begun again in 1957. Pushed forward by the economist V. D. Patrushev (1962) among others, the USSR became the world's greatest producer of time use studies (Zuzanek 1980, p. 34).

In the United States, Robert K. Merton is said to have conducted a survey in the early 1930s using diaries, but the results were never published. Lundberg, Komarovsky and McInerney (1934) is usually considered the first American time use study to use the diary principle (Robinson and Converse 1972). Though the authors gave few details of their methodology (1), we know that the diary distributed to the 2,460 respondents (two-thirds of whom were high school students) was a simplified version aimed at collecting time uses during three types of day (2). Altogether, from November to May 1931-32 and 1932-33 in Westchester County, 3,476 diaries were collected.

Pitirim Sorokin, who had been a student of Strumilin's before emigrating to the United States, joined with Clarence Berger to translate the sociological theorization of time that he and Merton had developed (Sorokin and Merton 1937) into empirical terms. Their survey, which ran from May to November 1935, made use of diaries in an attempt to provide answers to a series of sociological preoccupations such as "bringing to light the motives for observed behaviors and the link between those motives and the general model of human behavior" or "predicting human behavior through the study of regularities in observed behavior" (Sorokin and Berger 1939, pp. v-vi). The survey-based

(1) The details of their method may be determined from Sorokin and Berger's criticisms of it (1939).

(2) It therefore used a combination of the

diary method and respondent duration estimates. The three day-types were a weekday, Saturday and Sunday.

analysis failed to dominate effectively the diversity of the material collected and it was sharply criticized (see Bowers' 1939 review in *The American Journal of Sociology*).

From 1947 to 1958 in France, the Institut National d'Études Démographiques (INED) conducted three time use surveys all focused on variations in occupational and domestic workloads among married women by number of children. The first survey used a combination of daily diaries divided into five-minute segments and weekly ones in half-hour segments (Stoetzel 1948). From 1947 to 1998, six surveys were done that allowed for measuring the gradual, slow reduction in total workload (occupational and domestic) for women living in urban contexts in France (Girard 1958; Szalai 1972; Chenu 2002a).

In the United States and Japan, new time use surveys were launched by private institutions with ties to emerging television networks (the Mutual Broadcasting Company in 1954 and the Nippon Hōse Kiokai or NHK in 1960-61) with the aim of improving programming and advertising market segmentation.

The beginnings of time use surveys may thus be understood as an extension of the first empirical sociological surveys, initiated in the mid-nineteenth century by Frédéric Le Play and others. Like those earlier surveys, time use surveys developed first around efforts by states and philanthropists to acquire better knowledge of society (Savoye 1994). But the affiliation between time use surveys, family budget surveys and the first empirical investigations goes beyond their obvious methodological kinship. Here we should recall the many efforts required to modify the initial vocation of family budget surveys – which was to investigate family morality – and transform them from a mere procedure for constructing price indexes into the empirical foundation for a new type of sociology: “household lifestyles” (Halbwachs 1933). In his *Classe ouvrière et les niveaux de vie* (1913), Halbwachs was in fact the first to understand that household budgets could be used to sociologically investigate how individuals are situated in relation to the preferred values of a given society. He developed what Baudelot and Establet (1994) call “the campfire theory”, an analysis of social stratification in terms of distance from an integrated household. In time budget surveys as in consumption budget surveys, individual and household preferences and the constraints bearing on individuals and households are expressed in budget structure, and in this respect, time use surveys contribute to a sociology of lifestyles that is no longer limited to the monetary sphere but encompasses daily life as a whole.

The Multinational Comparative Time-Budget Research Project (1965-1972)

In the early 1960s, the Hungarian researcher Alexander Szalai put his organizing talents to work for the *Multinational Comparative Time-Budget Research Project*, which he directed from the European Coordination Center for Research and Documentation in the Social Sciences, headquartered in Vienna. Concerned to reduce the East-West split, Szalai saw international time use comparison – time use surveys were still a thriving tradition in the Soviet Union – as a theme likely to interest academic institutions on both sides of the divide. The countries participating in the 1965 and 1966 surveys were urbanized to highly divergent degrees; most of these surveys focused exclusively on inhabitants of medium-sized cities. The main methodological traits common to the 12 participant countries (Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, the U.S.S.R. and Yugoslavia in the East; Belgium, France, the Federal Republic of Germany, Peru and the USA in the West) were surveying by means of daily activity diaries and coding on the basis of a 99-activity nomenclature. The diary format allowed for indicating primary and secondary activities; for each primary activity, the respondent was to indicate where, to what purpose and in whose company it was done. Altogether, 30,000 people were questioned. The 1966 International Sociological Association conference at Evian facilitated coordination among the many researchers working on the project. The study eventually led to publication of a major work, *The Use of Time* (Szalai 1972). The first part, by Szalai, P. E. Converse, J. P. Robinson, E. K. Scheuch and P. J. Stone, is a veritable time use survey handbook. The second presents a multitude of empirical results, bringing to light certain regularities common to Eastern and Western countries – e.g., the lower a man's educational level, the less likely he is to participate in housework – and a few national specificities (e.g., mealtime is longer for the French than for any other people). The third and last part presents a set of tables and graphs strictly comparable from one country to the next and bearing not only on time budgets but also on the frequency of main activities by moment in the day.

No one who has not undertaken such a comparative study can have any idea of the difficulties of all sorts it entails, difficulties that usually bring the project to a halt or at least impose heavy restrictions on it. In addition to funding problems, there are the difficulties of collective methodological discipline, of obtaining identical versions of questions given language differences, difficulties relative to reaching common conceptualizations in a situation of conflicting political or philosophical ideologies, and of determining common interpretive principles. A. Szalai and his permanent team have managed to overcome all these obstacles, and deliver us a

vast sum of information and comparisons of unprecedented scope and quality”.
(Dumazedier 1975, p. 126)

Unprecedented too were the quality of information archiving, the clarity of the information used, and the extent to which it was made available to other researchers for secondary analysis. Thanks to all these qualities, and despite its weak points, namely its lack of theoretical force, *The Use of Time* acceded to the status of time use bible, lastingly fixing the major methodological characteristics of this type of survey. The only important change has been to prolong field work to an entire year, a costly arrangement that allows for characterizing activities by season and controlling for season effects – those effects were effectively analyzed for France by Philippe Besnard (1989) – whereas participants in the Szalai program had been instructed to collect responses either in autumn 1965 or spring 1966: “The research teams were requested to avoid any interviewing in ‘the dead of winter’” (Szalai 1972, p. 63). Some of the 12 national surveys were steered by academic teams, others by public statistics institutes. In the case of France, Szalai had proposed to the director of the *Centre d’Études Sociologiques*, Pierre Naville that the CNRS run French participation in the multinational project. That idea was turned down; Naville cited French researchers’ involvement in national surveys being done in 1963-64 under the direction of Madeleine Guilbert (Guilbert, Lowit, Creusen 1966a, 1966b, 1968). Szalai then turned to the Institut National de la Statistique et des Etudes Economiques (INSEE), which ultimately took on the task of steering the 1966 French survey and collecting the data. The INSEE data were of very high quality, but analyzing them for purposes of international comparison did not figure in the professional obligations of French public administration statisticians. In the meantime, the CNRS researchers, near-novices just as their 1930s American counterparts had been, were not able to dominate the complexity of the data they had gathered (an overly ambitious attempt to describe three simultaneous activities, a predefined activity grid that made data collection cumbersome and introduced bias, an undersized sample, etc.). They lost interest in the Szalai program and its sound methodology. So it was that a scenario which had already occurred in the early 1950s in the field of social mobility studies repeated itself: David Glass had suggested that French CNRS researchers participate in a comparative program he was organizing with funding support from the International Sociological Association and UNESCO; the CNRS turned down the offer, citing what they considered unacceptable and project-marring presuppositions about prestige scales (Merllié 1994, p. 156). It was INSEE that in 1953

first conducted a labor force survey that included a section on respondent's social origins; this led to a few INSEE publications on the French case alone. For their part, CNRS researchers long remained on the sidelines of developing international social mobility research programs.

The success of the program coordinated by Alexander Szalai helped fix the conventions used in time use surveys, and this in turn offered cumulative possibilities for temporal and spatial comparison of observations of an increasing number of countries studied over increasingly long periods. Still, the increase in time use surveying has been limited because collecting and coding activity diary responses continue to be extremely expensive operations and the matter of result analysis remains "rather esoteric" (Gershuny 2000, p. vi).

After The Use of Time

The research network that developed around Alexander Szalai and the Multinational Project led to the founding of the International Association for Time Use Research (IATUR). The various sorts of know-how on collecting and analyzing activity diaries could now be transmitted and enhanced within this association. In the 1980s, one of IATUR's most active figures, the Briton Jonathan Gershuny, launched the Multinational Time Use Study (MTUS) with the purpose of developing a single file that would stack harmonized data on time use as observed in 24 countries over 30 years (3). Gershuny's *Changing Times* (2000) was the culmination of this program. The work attests to a series of both theoretical and methodological advances on *The Use of Time*.

As both an economist and sociologist, Gershuny sees time use studies as a means of narrowing the considerable gap between micro and macrosociological approaches to the social world. Consumption requires monetary resources, but also time; paid work produces monetary resources but requires time. In a neophysiological approach, some people's consumption time appears the obverse of others' production time. But Gershuny has also tested micro-economic theories of the family (Becker 1965). Whereas *The Use of Time* remained within the confines of a descriptive, empiricist view, in Gershuny's work changes in lifestyles take on meaning within explicit theoretical frames. Applying multiple regression calculations to a single data file that covers different countries and observation dates has become the main method of testing researchers' hypotheses.

(3) Researchers may access harmonized survey data at <http://www.timeuse.org>.

In the late 1990s the public statistics organization Eurostat called on IATUR members' expertise to formulate a series of recommendations that worked to increase the homogeneity of national surveys conducted in most European Union countries in the years 2000-2002. The HETUS program (Harmonised European Time Use Study) broadened the MTUS to encompass this new wave of surveys. Across the Atlantic in 2003, the U.S. Bureau of Labor Statistics carried out an American Time Use Survey on a sample of 20,720 persons who had already been questioned in the framework of the Current Population Survey. This type of survey used to be done every ten years (4); it has now become annual. While time use surveys are done with increasing regularity and systematicity in wealthy countries, they are seldom done in poor ones, where it is difficult to assemble the required set of economic, organizational, and intellectual resources.

Improved apprehension of the strengths and limitations of activity diaries

The tradition of time use surveys was gradually enriched by methodological studies that make it possible to better grasp both their specific contributions and their limitations.

Reiterating a type of connection already made by Robinson (1985), Jens Bonke has recently compared work time measurements as furnished by time use diaries with those produced by a questionnaire where respondents were asked to estimate work time themselves (Bonke 2005). The average gap between the two values is slight for paid work and extremely wide for housework. In a 2001 Danish time use survey, questionnaires gave an overall length of paid work time that was 2% below that collected by means of diaries – what can be called a good convergence rate. At the individual scale, divergences are high around extreme values: “People reporting many hours of paid work tend to overstate the actual number of hours worked, while those reporting only a small number of hours worked tend to understate their contribution to the labour market” (Bonke 2005, p. 366; N=1904; see Robinson and Godbey 1999, p. 85 for similar observations for the United States). Such differences may be interpreted as purely random: when a given entity is measured twice, a regression to the mean is observed; the extreme values from the first measurement become less extreme when the measurement

(4) The 1965-66 and 1975-76 surveys (N=2001 and N=2406 respectively) were done at the Survey Research Center of the University of Michigan; those of 1985 (N=4939) and

1992-94 (N=9383) were conducted at the University of Maryland (AGUIAR and HURST 2006, P. 40).

is taken a second time. But Bonke as well as Robinson and Godbey consider the diary method more likely to give values closer to the amount of time actually worked because it is more detailed than respondent-provided estimates. Such estimates seem shaped to some degree by strategic aims (Robinson and Godbey 1999, p. 86): for Americans with work responsibilities it is appropriate to appear overworked, so the estimates given tend to be inflated.

Obtaining respondent estimates of time spent on “household work” is a fairly complex operation because we cannot assume there is consensus among surveyors and respondents on what the perimeter of such work is; that perimeter is an artefact which only has meaning for statisticians and militant feminists (Lemel 1991). The Danish study enumerates nine tasks:

[...] shopping, visiting public offices, etc., food preparation, washing up and table clearing, washing, gardening, home repair and maintenance, and bringing and collecting children. The definition of household work is in accord with that used in other time use surveys and follows the recommendations for future European time use surveys”. (Bonke 2005, p. 355)

The survey asked respondents to indicate time spent at each task per week. Amount of time spent on household work as collected through respondent self-assessment is much lower – 55 % – than when estimated by the diary method.

“Questions seem to express norms more than actual behavior”, concludes Bonke (2005, p. 351). However, “actual behaviour” is still not directly accessible by the diary method; diaries too are exposed to normative bias. When describing one’s work day to an unknown interviewer, it may seem inappropriate to mention extra-occupational activity episodes such as flirting, having an (alcoholic) drink, reading the newspaper. In certain occupations, stretches of full activity are followed by waiting periods that fall somewhere between work and non-work. This explains why the collective labor accords for truckdriving, for example, assign special status to these breaks, including them in work time but specifying lower pay. Time use survey coding conventions for the general population do not take into account these kinds of particularities. In general, diaries can in no way provide access to “actual” measurements of time spent working or on other activities; they only allow for obtaining measurements that are more relevant than others, and this within a framework of multiple conventions and particular types of questioning.

The conclusions to be drawn from comparison of the two methods – respondent self-assessment and activity diaries – are clear. For activi-

ties whose duration is institutionally controlled – paid work, teaching – there is strong convergence between the two approaches. The diary method is much more costly than collecting self-assessments. This means that for any investigation centered primarily on institutionalized activities (namely workforce surveys) researchers can reasonably settle for using the self-assessment method. But if researchers are interested in relatively uninstitutionalized activities, the material collected through self-assessment is marred by considerable cognitive and normative bias (as attested by the fact that questioning meant to cover the spectrum of all possible activities produces daily totals quite different from – usually below – 24 hours). In this case, then, the diary method is the only possible one. If the survey focus is household work, leisure, personal time, or occupational time where social control over the length of that time is weak (time used by teachers to prepare classes or correct papers, occasional assistance from a retired person or child, etc.), the only effective method is the activity diary.

Still, that method has several methodological weaknesses, and at least one serious one: time length measurements are sensitive to how detailed the descriptions are. Extremely brief diaries, filled out in haste by poorly paid interviewers and/or rushed respondents, leave out short episodes or ones that depend on more strongly structuring activities. The breadth of this phenomenon may be measured by comparing the French surveys done in 1986 and 1998. The level of definition expected of interviewers and respondents decreased with the doubling of the diary “grain” (in 1986 each line corresponded to 5 minutes, whereas in 1998 a line represented 10 minutes; in other words, respondent was asked to describe her 24-hour day in 144 lines rather than 288). Interviewer taskload was also lightened. In 1986 interviewers were instructed to revise diaries during their second visit to respondents, after they had identified material that might have been left out, such as getting from one place to another, work breaks, and other low visibility episodes. In 1998 they no longer received this instruction. In 1986 the daily diaries included an average of 27 episodes, whereas in 1998 the figure was 20.

The effects of these changes show up clearly in two examples. The first concerns responses for movie length. Between the 1986 and 1998 surveys, movie length increased considerably – from 1 hour 50 minutes to 2 hours 12 minutes. Film length probably hadn’t changed at all; from 2 p.m. to midnight most movie theaters still program five feature-length films. But the episodes related to seeing a movie – getting there and back, waiting in line, having something to drink – were probably understated in 1998, amalgamated into the more memorable, structuring episode of

watching the movie itself. Second example: mealtime length (Saint Pol 2005). Results from the two surveys suggest it has been increasing in France – contrary to the fast food trend effect which seems to hold everywhere else. In fact, it is highly likely that the changes in survey methodology from 1986 to 1998 induced respondents in the later survey to include meal-related activities (setting the table, doing the dishes, taking a mid-meal break) in “meal” episodes, whereas in the earlier survey these activities were distinguished from the meal. When the number of episodes is introduced as a control variable in regression calculations, it is observed to interact strongly with length of occupational time (overestimated in succinct diaries) and lengths of household work and transportation time (underestimated).

The fall from 27 episodes per 24 hours in 1986 to 20 episodes in 1998 thus constitutes a major discontinuity in the French survey series, one that in this case leads to the conclusion that increase in mealtime length and the striking decrease in the amount of time devoted to household work are likely to be methodological artefacts rather than changes in respondents’ lifestyles.

To rectify these problems and thus improve comparison of durations for these two types of work, Klas Rydenstam (2001) took into account the effects of differentiated fractioning of occupational and household work. The shorter, more numerous episodes of household work are separated from each other by breaks or small distances that would be omitted if those episodes were longer – and such breaks and distances are indeed omitted in descriptions of occupational work. Accepting these corrections leads to upping the length of time spent doing household work and thus reevaluating the gap between the respective total amounts of time that men and women spend working – to women’s disadvantage.

Analysis of activity designation content in 1998 French survey diaries reveals that certain types of occupational work generate designations similar to those characteristic of household work. Those designations indicate the precise content of activity. A teacher specifies “corrected papers”, for example (Chenu 2004). Abstract descriptions of occupational work – the most common example being “worked” – are observed first and foremost among task-executing employees whose activity is confined to a specific space and whose schedules are employer-controlled. Work thus does not appear as a homogeneous entity across social space. “Like household work and in contrast to abstract work, occupational work described in concrete terms in the diary is also likely to be punctuated by breaks that are described as such” (Chenu

2004, p. 297). The tendency to overestimate length of time spent in occupational work by understating the various interruptions is stronger among low-skilled task-executing employees than among persons in other types of employment.

Another methodological weakness of the diary device is that whether respondents categorize an activity as primary or secondary depends to some degree on the examples they were given in the instructions. Ragni Hege Kitterod has shown that a relatively uninstitutionalized activity is less likely to be presented by the respondents as a primary one if it is presented as a secondary one in the instructions (Kitterod 2001).

Yet another methodological difficulty of time use surveys has to do with the fact that results are considerably dependent on instructions given to interviewers with regard to substitution possibilities – substitution of one person for another and/or one day for another for a given person (Szalai 1972, p. 36). It costs an interviewer much more time to obtain the information needed to fill in the diary for a given day from a person who is seldom at home and thus difficult to locate than to interview a homebody. If substitutions were disallowed and interviewers actively sought out the designated persons, the response rate would be lower than for stricter instructions but sample representativeness would be better. INSEE's 1998-1999 French time use survey was conducted before Eurostat program harmonization rules had been fully formulated (the INSEE survey field work had to be completed before the 1999 French census). The French substitution rules were more flexible than those adopted by Eurostat, and this explains the high response rates and probably the overrepresentation of stay-at-homes.

II. *Social change and daily life: the contribution of time use surveys*

Research results obtained through time use surveys pertain to three main theme areas:

- debates on the leisure civilization and the end of work
- work rhythms
- intrafamilial synchronizing of social time.

This review does not take into account the applications of time use surveys to social uses of the internet, a development that is too recent to be analyzed here. Nor does it consider studies on “time departments”, such as those created in Italian cities in the 1990s, which try to improve

coordination of the schedules of different collective services at the town or village level, as little has been published on these questions (Boulin and Mückenberger 2002).

Debates on the leisure civilization

Time use surveys have played a major role in the emergence of a sociology of work and leisure endowed with solid empirical foundations – as distinct from journalistic futurology essays either announcing “the end of work” (Sue 1995; Rifkin 1995) or criticizing its increasing weight in our lives (Schor 1991).

In France in 1962, Joffre Dumazedier created a stir with *Vers une civilisation du loisir?*, based primarily on a 1958 survey by INED (Dumazedier 1962). In 1974, in *Sociologie empirique du loisir* and in 1988 in *Révolution culturelle du temps libre 1968-1988*, Dumazedier further developed his sociological concept of the leisure society, a concept which he identified as an extension of studies by Lundberg, Komarovsky and McInerney (Dumazedier 1974, 1988). Dumazedier developed the following argument. Improved productivity after 1945 had made possible a reduction of both paid and unpaid work time; the time thus freed was being transformed into leisure; that is, used for personal development and fulfillment thanks to the loosened control by traditional institutions such as church and family over the working classes. This development was the result not only of economic growth but also social movements (unions, feminist movements, etc.). Leisure was not idleness; rather it presupposed work and employment, and it derived from “periodic liberation from work: at the end of the day, the week, the year, working life” (Dumazedier 1974, p. 25). The increase in leisure time partook of the new balance being set between social constraints and personal development. Some years later Paul Yonnet stressed that the overall downward trend in work time was due in large part to general increases in length of education and unemployment – two phenomena that in no way modify the qualitative importance of work in contemporary societies (Yonnet 1999; Chenu and Herpin 2002).

In the United States, two successful works published in the 1990s sharply criticized the thesis that contemporary societies were heading toward a leisure civilization. The American economist Juliet Schor (1991) and the sociologist Arlie Hochschild (1997) claimed that in fact Americans were working more and more. These results were contradicted by John P. Robinson, an experienced time use survey specialist (main author of the third part of *The Use of Time*), who estimated that

Americans had actually worked less in the 1990s than before (Robinson and Godbey 1999). This downward trend has been confirmed in Aguiar and Hurst's recent analysis of a 2003 American survey (2006), among others. Meanwhile, the rate at which leisure time increases – fast in the 1960s and 1970s – has slowed considerably.

Above and beyond these developments, Jonathan Gershuny in *Changing Times* identified a fundamental contemporary phenomenon: the skills-work time gradient has been reversed; “the money rich are time poor and the money poor are time rich”. The increased amount of work time among high-skilled employees and the reduced work time of low-skilled ones, together with the latter's increased vulnerability to unemployment, is indicative not of the advent of a leisure society but a shifting of workload into upper social space. In exchange, the highly skilled are more carefully organizing their leisure time and drawing denser gratifications from it, if necessary by using paid services (Chenu and Herpin 2002). Gershuny's analysis took up and empirically substantiated Staffan Linder's thesis of the “harried leisure class” (Linder 1970).

One limitation of Joffre Dumazedier's approach had to do with its somewhat dogmatic perception of the family. For this author leisure amounted to time freed up by newly loosened social constraints; one such constraint was business, but another was family. However, studies of the contemporary family tended to show that family solidarity had come to be less a matter of family line interests than the quality of interpersonal relations (Durkheim 1921; Berger and Kellner 1964). In fact, the family has come to play an increasingly important role in daily personal development and leisure – though this does not preclude it from being a framework for conflicts as well (Daly 2001).

Work rhythms

Time use surveys shed new light on more than work duration; the chronological structure of the diary is also a unique source of information on how worked hours are distributed across the day.

In survey devices for collecting data on working conditions that do not use activity diaries, work schedules are traditionally approached through a series of questions on atypical schedules: night work, weekend work, shift work, etc. This a priori categorization of schedule types makes use of criteria that follow from the labor laws in effect and that therefore vary from one country to another and by date. In the United States, the first quantitative analyses of work hour distribution over the

24 hours of the day were based on surveys that included indications about what standard work schedules were. The main surveys analyzed were the 1977 Quality of Employment Survey (Staines and Pleck 1983, Nock and Kingston 1984) and the “Work” supplements of the 1973, 1978, 1985, 1991 and 1997 Current Population Surveys (Presser 1984, Hamermesh 2002). In the 2004 Current Population Survey (the May supplement on flexible working hours), night work is defined as “any time between 9 p.m. and 8 a.m.”. The 2004 French time use survey applied the most recent ILO definition instead, where night work is “any work done during a period of at least 7 consecutive hours that includes the interval between midnight and 5 a.m.” (this definition is different from the one that was in effect at the time the ILO was founded). The British Labor Force Survey of 2005 used a more sophisticated breakdown: “three-shift working, continental shifts, two-shift system with earlies and lates or double-day shifts, split shifts, morning shifts (6 a.m.-2 p.m.), evening shifts (3 p.m.-12 a.m. but 5 p.m.-9 p.m. or 6 p.m.-10 p.m. for part-time jobs that include evening work, called the twilight shift), night shift (6 p.m.-6 a.m.) weekend shift and other types of shift work”. Altogether the diversity of definitions of night and weekend work limit possibilities of comparison over space and time.

On the other hand, the material collected by means of time use diaries is detailed and lends itself to applying thresholds of all sorts to define a given type of work schedule. Sample sizes, however, and the difficulties involved in switching from a day-long to week-long observation period represent other limitations. Prolonging the observation period to a week opens up possibilities that have been explored in the framework of the HETUS program. Participating countries distributed a weekly grid to respondents; occupied persons were asked to indicate their work hours in a 7-day diary broken down into 15-minute units. This kind of instrument works well for studying daily and weekly rhythms and interrelations between the two; among other things it allows for assessing the effects of legal working hour reforms. In France, the 1998 survey was funded in part by the ministry of labor as laws were being developed to reduce the work week to 35 hours. The first analysis of daily and weekly work rhythms done on the basis of the weekly diaries from the 1998 French time use survey was conducted by subdividing the day into several short stretches of time using a typology developed from statistical analysis of the diaries (Chenu 2002b). Six types of weekly work schedules were identified: a standard five-day week, a non-standard five-day week, a six- or seven-day week, a four-day week, a night-work week, and other weekly schedules. Only one of three worked weeks is a

standard five-day week (32%); 24% are non-standard five-day weeks and 25% are six- or seven-day weeks. Taken together, weeks with two non-consecutive days off and weeks with only one entire day off are much more prevalent than what is commonly thought of as the normal work week.

The different ways of organizing work time at the weekly scale are not at all evenly distributed across social space. While the standard work week is characteristic of major bureaucratic organizations, high-skilled employees (managers, secondary school and higher education teachers) are likely to work a non-standard five-day week, whereas long work weeks are specific to the self-employed. Industrial and other manual workers are particularly likely to work at night, but they are joined in this by the police and the military. The four-day work week is a translation in “week” terms of part-time employee jobs with one day off in addition to the weekend – this is often the case in the French civil service.

These results were supplemented by an analysis of 1985 and 1998 French survey results on distribution of work hours over the day (Lesnard 2006a). Here the workday typology was not constructed beforehand but after sequential analysis of work schedules using an *Optimal Matching* method (Abbott 1995; Abbott and Tsay 2000; Lesnard and Saint Pol 2006; Lesnard 2004, 2006c). Four main work schedule types were identified: standard schedules, shifted schedules, long work days, and irregular, fragmented schedules. Standard schedules, which have been declining since the mid-1980s, represented only one worked day in two in 1998. Shifted schedules amounted to nearly 17% of days worked in 1998. There are four types of shifted schedule: morning, afternoon (often partially worked days with shifting toward the late afternoon or early evening), evening, and night. Long work days last on average 10 hours and represent 11% of worked days. The last type comprises days with a low number of worked hours and fragmented schedules.

Work schedules depend on activity sector and occupation. Managers and the liberal professions are likely to work standard hours, sometimes long days; heavy industry workers work standard and sometimes shifted schedules; task-executing service industry employees work fragmented or irregular schedules. Schedule shifting depends on activity sector: industrial and other manual workers’ schedules are shifted toward night and morning; shop and personal services employees are likely to work evenings. A question in the 1998 survey allows for specifying the degree of constraint in this strong social differentiation: work schedules appear essentially determined by the employer (68%) while a small minority of occupied persons (16%), made up of highly qualified managers and

experts, are relatively free to organize their schedules. Schedules are most likely to be shifted when they are employer- or customer-imposed. In a study of Germany that uses coarser indicators (number of interruptions over the work day and working before 7 a.m. or after 5 p.m.), Merz and Burgert (2003) discovered greater prevalence of fragmented hours in low social space. However, their regularity indicator does not allow for distinguishing shifted short schedules, which are overrepresented among manual and office workers, from the long work days characterizing managers and the liberal professions.

Synchronization and desynchronization of family time

From the outset, time use surveys have been the only means of acquiring knowledge about length of time used for household work, and they have therefore played a key role in the development of the sociology of family and gender roles. Recent developments in survey procedures have broadened the field of time use survey application. The procedure of interviewing different members of the same household has been particularly useful; it opened up new possibilities for testing microeconomic theories of the family (Becker 1965; Chiappori 1988). In time use surveys where both spouses keep a diary, it is possible to go beyond study of interdependence among average activity timelengths and analyze in detail the sequential organization of the “family work day” (Nock and Kingston 1984; their expression). The fact that families in Western societies are now extremely likely to be headed by dual-earner couples raises the new question of spouse work schedule synchrony. The degree of desynchronization was first assessed by Chenu and Robinson (2002) on the basis of 1998 French data (5). A desynchronization index facilitated analysis of work schedule information from the weekly diaries and brought to light the broad diversity of work schedule combinations and their ties to income levels. The most sharply desynchronized couples are also those with the lowest economic resources. Lesnard (2005 and 2006b) has recently done a more detailed analysis of desynchronization using the Optimal Matching method earlier applied to individual work schedules. Desynchronization increased 20% from 1985 to 1998 and affects a high number of dual-earner couples: in 1998 standard “couple work days” (each made up of two standard work days) accounted for no

(5) In addition to Nock and Kingston (1984), Harriet Presser (1984, 1986, 1988, and 2003) and Daniel Hamermesh (2002) have studied couples' work schedules. But their

analyses are based on the usual individual schedule as estimated by the respondent; spouses were not questioned.

more than 44% of “couple days”. Logically, individual work schedule inequalities are sharpened at the level of the couple, and desynchronization appears inversely proportional to position in the social hierarchy. In general, dual-earner couples prefer to have synchronous schedules; desynchronization is thus due to the irregular, fragmented schedules imposed individually on spouses at the bottom of the social scale.

Taken together, these results work to nuance Gershuny’s thesis of a reversal of the social position-work time gradient (2000). The reduced number of work hours for employees at the bottom of the social scale often goes together with increased schedule irregularity and fragmentation; for dual earner couples, the two are synonymous with desynchronization. The leisure consumption of highly skilled employees with heavy but relatively regular schedules implies irregular schedules for low-skilled leisure service employees: the former’s leisure is the latter’s labor (Gershuny 2000). Women working low-skilled part-time jobs in shops and services may have a great deal of free time, but this is often time alone – qualitatively poor if quality is measured in terms of family sociability, since the children are often at school and the husband (if there is one) is at work.

Since the international survey headed by Alexander Szalai, time use survey nomenclatures have used certain headings that allow for recording amounts of time devoted to children: taking care of them, helping with homework, conversation, games. cursory analyses do not go beyond quantifying length of time spent in the main activities that fall under these headings. But the diary device lends itself to richer approaches that make use of information on secondary activities and persons co-present with respondent engaging in those activities. The amount of parent time is therefore likely to vary considerably by definition chosen. This variability is not a methodological weakness of time use surveys but results from the fact that family life is *par excellence*, and in keeping with Parsons’ analysis of it, an area in which roles are diffuse rather than specific, and multitasking is virtually the rule. Stone’s (1972) and Robinson’s (1977) analyses of family time take into account information on co-presence, and therefore calculate longer parent time than surveys that only consider activities directly focused on or in direct relation to children. When the co-presence or company variable is not taken into account and the observer follows primary activity headings to the letter, a major proportion of family time may escape observation. As Singly has pointed out, watching television may be interpreted as a solitary activity even when the entire family was watching the film (Singly 1999).

Once again, this impoverished vision of daily life is due not to the time use diary device but the time-budget filter. Most diaries allow for collecting contextual information over and beyond the main activity; i.e., secondary activities, in some cases multiactivities, persons in whose company an episode takes place, location, purpose, subjective perception of the situation, etc.

American sociologists of the family became interested in time use surveys largely in response to social demand fueled by concern about the consequences for children of the generalization of work for women in a national context where collective childcare facilities for very young children are rare and expensive (Bianchi 2000; Bianchi, Robinson and Milkie 2006).

Sayer *et al.* (2004) used American time use surveys of 1965, 1975, 1985, and 1998 to test the thesis that the fact that women work is having harmful effects on children. They showed that time with the mother as measured by activities directly related to or focused on children has considerably increased since the mid-60s, despite the downward trends resulting from such structural changes as feminization of the workforce and higher levels of education.

Kingston and Nock's studies represent a major advance in knowledge of relations between occupational work and family life among dual-earner couples (Kingston and Nock 1987, Nock and Kingston 1988). The first of these articles is a detailed sociological analysis of couple time, while the second studies parent time. In both cases, information on family member co-presence is included in all activity nomenclature headings (6). Couple time, nearly invisible from the time-budget perspective because it takes only primary activities into account, rises to 3 hours and 15 minutes a day, made up mainly of television (44 min), meals (33 min), and leisure activities (28 min). Analysis of parent time unsurprisingly shows that women spend more time than men in the company of their children (Nock and Kingston 1988). Type of activity depends on parent gender: while most of the time that fathers are with their children is spent watching television or in other leisure activities, household work in children's presence is at the top of the list of mothers' activities; taking care of children is second. In other words, reducing time that parents spend on caring for children (time spent for parenting purposes and repertoried as such in the activity nomenclature) amounts to increasing the time mothers spend with children (Singly 1999) and to eliminating a major part of parent time altogether, regardless of parent

(6) The authors used a 1983 survey, one of the few American time use surveys in which diaries were kept for both spouses. That survey included only 177 dual-earner couples.

gender. If dual-earner couple work schedule desynchronization is taken into account, it becomes clear that fathers make up only partially to children for working mothers' absence (see also Brayfield 1995).

These recent studies indirectly provide an image of the limitations of focusing inquiry into how occupational and family life fit together on the situation of women at a time when dual-earner couples are becoming the rule. The possible desynchronization of dual-earner couples' work schedules offers a new view of how spouses organize parental and household work: when parents' work schedules are desynchronized they can relay each other with the children. The work schedule desynchronization studies mentioned above considerably nuance this thesis, however: desynchronization of dual-earner couples' work schedules is almost never chosen, but results instead from the shifted schedules that companies impose individually on spouses (Lesnard 2005, 2006a, 2006b).

Using data from the 1985 and 1998 French surveys, Laurent Lesnard constructed a typology that takes into account the sequential organization of couple work days and thus allows for assessing some of the effects of family desynchronization (Lesnard 2005). Three types of time are considered: couple time (both spouses), parent-children time (both parents in the company of at least one child) and father-child, mother-child time (one parent and at least one child). An analysis of these different components of family time confirms many of Kingston and Nock's results: household work in the presence of the children is in fact the first mother-child activity, while television and other leisure activities are dominant in father-child time. The effects of desynchronization appear to vary by time of day schedules are desynchronized: triple synchronization of spouses' respective work schedules and children's school schedule is the arrangement most favorable to compounding or attaining a high cumulative amount of family time. The most strongly synchronous couples are also those who have traditional parental arrangements where the woman takes care of a major proportion of parenting and household work, though these couples do not reach the degree of specialization characteristic of mono-earner couples. When men have shifted schedules that require them to work in the evening, father-child co-presence time is low, as is overall parent-child time. This type of schedule shifting is observed first and foremost in households where parents are low-skilled employees: inequalities in family synchronization go together with more general social inequalities.

Conclusion

Since publication of *The Use of Time* in 1972, time use sociology has consolidated its theoretical substance and increased its methodological strength. The greatest and most influential advances have most likely been in the international comparison approach. Szalai team analyses were primarily descriptive. Later studies (particularly Gershuny 2000) provided theoretical foundations for the convergences observed among the main economically developed countries. Moreover, time use studies became intertwined with studies of the welfare state, leading to studies of the relations between these divergences and various social protection systems (Esping-Andersen 1990). The combination of an improvement in data filing and a major methodological advance have made it possible to narrow the gap between microsociological approaches to individual behavior and macrosociological studies of the institutions constitutive of welfare states. The methodological advance is multilevel regression; meanwhile data files of the HETUS variety are allowing for increasingly rich comparisons among countries and observation periods over time, making it possible to characterize the effects of specific social protection system reforms on respondent behavior. There seem to be two sources of promising future developments. First, arrangements similar to the Bureau of Labor Survey have been put in place, making longitudinal studies possible which allow for characterizing individual time use variation over several years of observation. Second, methodological developments in sequential activity organization analysis are making it possible to dominate the complexity of individual and interindividual time use more fully, thereby attesting to the current relevance of Hubert's proposed research program on the rhythms of collective life (1905).

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