Time Use Studies: Daily Life and Social Change

1. Background

The core of a time use survey is a time use diary, which continuously registers an individual’s sequence of activities during a specified period, normally ranging from one day to one week. Appropriately constructed samples of such activity sequences may be used as the basis for the construction of a peculiarly comprehensive form of socioeconomic accounts, giving time use studies a unique potential for addressing both micro-level comparisons of the activities of different social groups and a macro-level system of national accounting based on time-use indicators.

Diary samples registering monetary expenditure have been for more than a century a central part of the armoury of empirical economists. Time use diary samples are potentially of similar importance for sociology, as there are important connections between the short term circumstances of individuals’ and households’ daily life, and much grander and more permanent-seeming social and economic phenomena. Things that we do with our time, regularly and repeatedly, on a daily, weekly or monthly cycle influence the resources that determine our life-chances in the long-term. There is an interdependency between short-term sequences of work and leisure activity and the processes of accumulation of production and consumption skills and social connections (i.e. human, cultural and social capital). Time use studies can provide a basis for integrating the diverse phenomena of production and consumption—a general framework of explanation of processes of social change through the construction of a hierarchical system of time use accounting relating the most micro-sociological level to the most macro.

In addition to research focused on the frequency, duration and tempo of individual activities (or groups of activities such as unpaid work activities, leisure activities), increasingly important applications of time diaries undertaken by the project team have involved the analysis of activity sequences and of additional information concerning the physical and social context of activities, revealing phenomena such as the times of day that activities are undertaken, the consequentiality of successions of activity (e.g. shopping requiring travel, which may be interrupted by childcare responsibilities), or co-presence (parents caring for children, couples taking leisure together). This micro-level information on individual activities and activity sequences may then be aggregated up to constitute individual and household time budgets, further aggregated to give the time use patterns of different interest groups in various class situations and economic and demographic categories, and finally to provide a comprehensive system of social accounts for the society as a whole which includes both the activities of work in the economy, and unpaid work and leisure consumption outside it. Emerging, therefore, from the research undertaken for the project is a comprehensive view of economic activity within the social settings or contexts in which it is embedded.

Over the project period, the Centre for Time Use Research (of which the investigator is Director) has firmly established itself as the world’s leading source of internationally comparable micro-data on time use, of information on time diary
sources and as one of the international leaders in time diary analysis. At the inception of the grant in 2004, the Multinational Time Use Study (MTUS) data-base and research team formed part of the data and research resources of the ESRC-funded Institute for Social and Economic Research (ISER) at the University of Essex, where the applicant was Director. The Centre for Time Use Research (CTUR), established in October 2006 and based at the Sociology Department of Oxford University, continues the work of the time use research team from the ISER as well as providing a focus for economic sociology within the Sociology Department at Oxford University.

2. Objectives

The overarching aims of the project were: to provide new substantive insights into social change through the study of the use of time in society; to innovate in the methodological aspects of the collection and analysis of time use data; and to provide resources in the form of harmonized time use datasets, technical information, training initiatives and support to users. Each of these areas was successfully addressed during the project.

The specific objectives of the project were focussed on a series of related subprojects under two main programmes:

A programme of substantive research, involving a group of ten linked time use research subprojects, including, at the micro-end of the work, analysis of activity sequences through the day, and at the macro, the use of time allocation data in social and economic accounting systems.

A programme of methodological investigation and data preparation, involving five further subprojects bringing together a range of different time-diary sample surveys for comparative historical use and linking them to other data sources (particularly panel materials), and undertaking a range of methodological work. The updating and provision to users of time use diary data resources such as the MTUS and the American Heritage Time Use Study (AHTUS) has been one of the central features of the project.

Since these subprojects are already divided into substantive and methodological areas, it seems logical to summarize the methods and results of each subproject in turn.

3. Methods and Results

3.1 Substantive Research

Subproject 1: Sequential analysis – change over time in sequences

Activity sequences constitute among other things the chains of production through which skills are combined to produce useful goods and services. The objective of subproject 1 was to analyse historical changes in the times that different sorts of

1 See our website <www.timeuse.org>
people engage in various activities, and how these are connected to changes in public regulations and services (e.g. maximum work hours, level of childcare provision) and to “Zeitgebers” more generally (societally determined fixed points in the day, such as pub closing hours or timings of popular television programmes around which activities are structured). An innovative means of visualizing these changes as 'day-profile' charts, showing the time devoted to different activities at different times of the day, was developed by the ISER/CTUR team. Using such charts, Fisher et al show from AHTUS data that while the daily sequence of activities for US men in 1965 and 2003 look generally similar (though with a remarkable loss of defined meal times), the charts of women for these years look quite different, with women dramatically reducing their unpaid work time in the middle of the day by 2003 (Fisher et al 2007).

Bittman has used the MTUS Australian time use data series to assess the effect of the increase in unsocial working hours, in particular the effect of the implementation of obligatory Sunday working (for those occupational groups affected), on 'family togetherness' over a week of activities. Those who worked on Sundays enjoyed substantially less time for recreational activities, family conviviality and civic association on a Sunday, and that this time was not made up during the week, so that Sunday workers missed out overall on social participation and had less time to balance the demands of work and family (Bittman et al 2005).

**Subproject 2: Multiple activities from “heavy” diaries**

The focus of this subproject was to try to redirect analysts’ attention beyond an exclusive focus on ‘primary activity’ diary information. The objective was to make use of the complex range of information contained in the 'heavy' diary designs which register multiple simultaneous activities, co-presence during activities, and often also collect simultaneous diaries from multiple household members—materials which have seldom previously been analysed together. The full potential of these opportunities will in the future be easier to realize with the World 6.0 upgrade of the MTUS, which improves the recording of both primary and secondary activities (where collected) and adds Harmonized European Time Use Study (HETUS) variables including time spent in the presence of partner (see subprojects 11 and 12). This will allow for the first time proper cross-national comparisons taking account of the full analytical potential of the heavy diary design.

This subproject has so far focussed on cross-time comparable materials from the USA and the UK. Voorpostel, Gershuny and van de Lippe (2009) used AHTUS data to contribute to the debate about changing intimacies in personal relationships. Analysing changes in the joint activities of couples over 4 decades, they found that by 2003 partners indeed spent a larger part of their leisure time together (controlling for different compositions of the groups over the years), congruent with the idea that marriage has become more intimate. Gimenez and Sevilla-Sanz extended this idea by investigating how leisure inequalities have changed over time according to educational group, also from AHTUS data. The main conclusion was that highly-educated individuals now have less, though higher quality leisure, as measured by spending more leisure time with their spouse and other adults, and enjoying a higher percentage of uncontaminated leisure, i.e., leisure that is not done simultaneously with non-leisure activities (Gimenez and Sevilla-Sanz, 2008).
Key to progress in this area are methods for conceptualising multiple activity in real time, while maintaining the 24 hour/day constraint. A presentational innovation developed for the CTUR work in this area, is the base-proportional histogram in which the horizontal axis represents the 24 hours of primary activities, the vertical representing the proportions spent solely in that activity and with other secondary activities and combinations of activities. We see from this “propogram” of the time of UK mothers of young children in 2001, that around two thirds of their leisure time is spent co-present with (and hence perhaps responsible for) children, and about 10% involves caring for children as a simultaneous activity. CTUR is contributing to various ongoing international projects developing this important area of analytic practice. In the childcare area, Gershuny and Lesnard both contributed short chapters to the Bianchi, Robinson and Milkie (2006) book. Similar issues arise with the use of diaries which include time specific measures of affect: Gershuny prepared a paper on activity and enjoyment measures for a meeting convened by Diener, Kahneman and Krueger (arguably the world leaders in this work) in Princeton in October 2008.

Subproject 3: Sequence modelling
The representation of the day in diaries is similar to that of events in life-history studies. Seven-day diaries in particular, yielding on average around 150 sequential events of varying durations for each respondent, lend themselves particularly to the formal modelling of daily activity sequences, the development of which was the objective of subproject 3. Lesnard introduced new techniques for modelling 'collective rhythms'—the synchronization of joint activity sequences—based on Optimal Matching Analysis.

The methodology, presented in the *Bulletin de Methodologie Sociologique* (Lesnard and de Saint Pol 2006), is applied in substantive research to modelling changes over time in the joint work-schedules of dual-earner husbands and wives in France between 1985 and 1998. The modelling process identifies twelve underlying work arrangements for such couples, differentiated the degree of synchronicity of work schedules (Lesnard 2004). Within these, a significant proportion overall (20%) of the spouses who both worked a full time schedule experienced a high degree (>50%) of desynchronization of schedules (the relation of this to the 2009 Voorpostel *et al* result above is currently under investigation). In addition, desynchronization dramatically increased between 1985 and 1998, both because more spouses worked more desynchronized days over the week but also because there was a general increase in desynchronization on most of the days of the week. The development of schedules other than the traditional 9-5 day (long working days, shifted schedules and fragmented hours) was particularly marked among disadvantaged social groups (Lesnard 2006).

**Subproject 4: Changes over historical time (technology and society)**

This central part of this subproject deploys the resources of the MTUS to explore the international picture of change in time use. Many of our findings serve to confirm previous trends (as for example the continuing, though slowing, reduction of gender bias in the division of domestic labour). Some challenge previous expectations: Gershuny’s ‘Trends in the Work-life Balance: Veblen in Reverse’, due to appear as a *Social Indicators Research* preprint in late 2008, uses the most recent release of MTUS data to show a reversal of the long-term reduction in the total of overall work times (both paid and unpaid) in four Anglophone countries (UK, US, Canada and Australia) but not in Nordic and continental European countries. Others point to unexpected changes in the relative positions of social groups, as in Gershuny (2005) “Busyness as the Badge of Honor for the New Superordinate Working Class”; the most recent release of MTUS provides evidence from 12 countries to test the hypothesis that the previous positive association between social status and leisure time reversed during the last third of the 20th century (paper currently in preparation).

Analyses of the relationship between technological and social change based on time use data which includes information on domestic appliances and information and communication technologies (ICTs) challenges the simplistic assumptions underlying much previous research on the impact of technological change. For example, a debate between the investigator and a CTUR Research Associate in the *British Journal of Sociology* over the effect of the ownership of domestic appliances on women's unpaid work (based on cross-sectional Australian time use data) contrasts the argument that women's domestic work time is at best not affected by the ownership of domestic

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appliances (c.f. Vanek) with the refuting argument that this finding is a methodological trap ('unobserved heterogeneity'), reflecting differences in the sorts of households who are likely to have many domestic appliances and those who are not (Bittman et al 2004; Gershuny 2004).

Another strand of research focuses on assumptions regarding the effect of ICTs at the micro-social level. This research challenges the idea that the spread of mobile phone technologies will irrevocably blur the distinction between the personal and public spheres (Wacjman et al 2008), undercutting the stereotype of the 'net-nerd' who has no social contact outside of a computer. In an analysis of a special time-diary panel study collected by CTUR, Gershuny showed, contrary to previous results from cross-sectional diary materials, those who start to use the internet during the period of panel observation also exhibit increased non-computer-related sociable activity (Gershuny 2007). Gershuny is joint editor of a book using time diary and other methods in qualitative and quantitative analyses of the inter-relationships between information and communication technologies and society in European countries, the overall conclusion of which is that the technological changes it identifies are complex, widespread, and so far relatively small – but over time the time diary evidence, available from the start of the process of diffusion of informatics, will allow us to track larger changes over longer time scales. (Anderson et al [eds.] 2007).

Subprojects 5 & 6: Household money and socio-economic time accounts

Subprojects 5 & 6 are treated as one here because together they deal with the macro-level extension of household accounts, with the objective of providing a combined monetary and time based system of national accounts. The theoretical framework is provided in Gershuny (2008; under review). Traditional household extension accounts have relied on input methods: time use diaries are used to identify time devoted by households to the various categories of unpaid work, which are then attributed a value. Output methods, in which household consumption events are counted and valued by market equivalents are technically preferable and enable the non-circular estimation of, for example, domestic productivity (the rate of domestic output per hour of unpaid labour). Measurement of such outputs has been an interest of the Office of National Statistics (ONS), and an alternative to estimates of the money value of labour or consumption focuses on the value of the time spent in that labour or consumption activity.

An empirical example using the UK 2000 HETUS survey draws on previous research carried out by the ONS to place a monetary value on the time spent in both formally organized and informal voluntary work. Modelling time spent in other activities, it is shown that while median wage rates for formal voluntary work are greater than those for informal helping, the latter is greater in frequency and duration and therefore more economically valuable from the societal perspective. The finding has implications for gender and citizenship issues since it is the highly educated who spend more time on formally organised voluntary work while the less qualified, particularly women, spend more time on extra-household unpaid helping activities (Egerton and Mullen 2008).
Extending this use of time diary data into a comprehensive comparable system of time-based socio-economic accounts (Gershuny 2008; under review) was the aim of subproject 6. Time, unlike money, is finite. Since at the societal level the total of work time (including that embodied in exports) must be sufficient to produce (or import) the goods and services required for the society’s consumption time, and since the distribution of occupations in the economy must mirror the pattern of consumption, time use indicators can provide not only measures of labour supply, but also (through consumption) the demand for labour. Thus the society’s time-budget can be used both to summarise all economic activity, and to connect the various sorts of economic activity to unpaid work and to consumption activities. Gershuny 2008 calculates societal-level time-budgets (the 'Great Day') from the UK time use data series from 1961 to 2001, providing evidence of 40 years of change in paid and unpaid work and its relationship to the fulfilment of consumption 'wants'. It is shown that over the period the modality of the 'Great Day' in the UK shifted decisively away from the fulfillment of basic needs to the satisfaction of luxury wants, associated with a growth in high-skilled employment and an overall substitution of unpaid for paid labour.

An assessment of the AHTUS data for the construction of extended National Accounts for the USA also formed part of the development process of the AHTUS data by CTUR (Egerton et al 2005).

**Subproject 7: Cross-national policy differences**

The aim of subproject 7 was to investigate policy correlates of national differences in historical changes in 'time-budgets'. There has been considerable interest over recent years in the effects of distinct regime types, which might be expected to have common time use patterns, and therefore to produce consistent national groupings by time use. Preliminary work suggested that, on the contrary, consideration of various different aspects of daily life (eg employment, unpaid work, leisure consumption) in fact produce somewhat different groupings of countries, sometimes organised by geographical regions, sometimes reflecting systematic policy differences. A cross-national examination of differences in the time parents spend caring for children aged under five in Norway and Sweden based on HETUS data showed that even between countries customarily grouped together in regime-based analyses, variation in child care and parental leave policies can produce quite significant differences in the time both fathers and mothers spend in child care at different ages of children (Sullivan et al, under review).

However, contrasting Scandinavian countries with countries generally classified as representing the most different policy regime type—the UK and the USA—reveals how the absence of child care related policies has an effect on female employment for women with children below school age, but also and more strikingly that, in a cross-sectional comparison of these countries, the time parents spend in child care is greater where policies are less 'family friendly'! That social norms and externalities, rather than more obvious indicators of policy, may be of paramount importance is a conclusion supported in a series of papers by Sevilla-Sanz and others, which investigate the seeming paradox of the national-level relationship at the end of the 20th century observed in OECD countries between traditional household ideologies and 'low low' fertility (Delaat and Sevilla-Sanz, under review; Gimenez et al 2007).
These findings have led to the development of a new initiative during the final year of the present project. Realising that an adequate analysis of the MTUS requires an understanding of changes in public policy at the national level, we have started the construction of a cross-national policy-change data base (building on the more static materials developed for the Luxembourg Income Study), initially including measures of parental and child care policies intended to be used alongside time use data in multilevel models of child care and related activities.

**Subproject 8: Life-course effects of daily activities from fused diary/panel data**

Panel data are desirable to investigate how daily activity patterns have effects on individuals over the life-course. For example, decisions about the allocation of household tasks in a heterosexual couple can affect the subsequent life-chances of a woman who has left work to look after the house or care for a child. However, diary panel studies are very rare; the Home on Line study (HoL) is probably the only diary study really suitable for the investigation of such effects. HoL is a national sample, a household time use 3-wave panel study which contains more than 2500 seven-day diaries. It uses both a precoded diary instrument and stylized questionnaire estimates of the same time use categories drawn from the BHPS—which enable reliability testing, and the data fusing activity described in Subproject 15 below. The objective of subproject 8 is to use the fused dataset to investigate the life-course and gender effects of daily activities. Kan and Gershuny (2006) describes the results of this data fusion exercise, and the resulting dataset is deposited in the Essex Data archive as an add-on to the BHPS. But the major contribution of this material is to the analysis of the gender division of labour (see subproject 9 below).

**Subproject 9: The gender division of domestic labour**

The MTUS provides the richest information for the analysis of national differences and historical changes in the domestic division of labour available from any source. The regularity of historical change and cross-national similarities and differences in time use would simply not be known if the MTUS project had not reconstructed and harmonised “heritage” time-diary studies, some almost 50 years old.

The 12 countries, with a total of 43 national surveys, that currently constitute the MTUS’ diachronic (two or more surveys per country) sub-sample, provides a promising basis for pseudo-panel (or birth cohort-following) analysis. But we have opted for the moment to focus first on the analysis of our real time diary panel materials, using a combination of analysis of the HoL panel itself, and the fused HoL/BHPS data,

Gershuny and Kan are currently working on a challenge to Brines’ “doing gender” hypothesis. Kan (2008), for example, found that, in the UK, women generally report their housework hours more accurately than men. Therefore, when the means of stylized estimates of men’s and women’s housework hours are compared, the gender gap in housework participation will be underestimated. In addition, men holding traditional gender-role attitudes tend in general to report more housework time in
surveys than in diaries, but the tendency is reversed when men do more housework. This finding casts doubts on earlier influential research that suggested economically dependent men tend to undertake less housework in order to avoid further loss in their masculine identity. An analysis of the gender differences traceable to previous time allocation patterns (Kan and Gershuny 2009) is due to be published shortly in a book edited by Ermisch and Brynin of the ISER.

Subproject 10: Social Mobility

The objective of the final substantive research topic was to investigate the implications of time-use patterns for life-course mobility and life chances, and hence for “social justice”. This subproject brings together the three time-use perspectives (the micro and macro cross-sectional, and the longitudinal) into an integrated—and innovative—account of social change. Mobility chances may be conceived as the joint outcome of the life-course accumulation of human capital, and the distribution of occupational employment opportunities at each point in the life-course. A society's time budget plays a key role in both of these and is therefore a crucial nexus in the determination of social structure and mobility.

Key areas of interest were: the impact of women's changing employment circumstances on their husband's housework performance (showing that over time
couples tend to adapt to changes in women's employment status - Gershuny, Bittman and Brice 2005); the debate over the significance of relative income against gender ideology in determining men's and women's housework (not supporting the contention that 'gender trumps money'—Kan 2008); the relationship between work orientation and women's life-course employment (indicating some support for, and also casting some doubt on, preference theory—Kan 2007); and how women's housework over the life-course impacts on wage rates (Bryan and Sevilla-Sanz 2007—see report for subproject 8). Extending this body of research to the wider assessment of social mobility over time, Gershuny and Kan (2006) show how an index of human capital (or 'social position') may be developed which provides a measure of an individual's potential wage in the labour market based on educational level, on degree of present and past attachment to the labour market as well as on present or previous occupational membership. Finally, Gershuny provides an analysis of the theoretical relationship between a society's time budget, the development of class interests and social change, through a mathematical model based on the combinations of embodied capital and personal and family circumstances. Since this model derives from the society's time budget it incorporates inequalities of time as well as money, and is therefore able to address the, sometimes cross-cutting, interests of different social interests both in production and in consumption (Gershuny 2007).

The data preparation for this subproject has been completed. Our intention is to arrive at an explanation of the accumulation of wage-earning skills through the life-course using the combined time allocation and human capital estimates for BHPS respondents; this is the next priority for our work during this academic year.

### 3.2 Data Preparation and Methodological Investigation

These resource-related projects are discussed in greater detail in the Appendix following the main report.

**Subproject 11: UK data series including couples and young persons files**

We have developed cross-time (1973-2001) comparative datasets for both couples and for young people in the UK; These will be deposited in the Data Archive during 2009.

**Subproject 12: MTUS development**

The current version can be downloaded from [www.timeuse.org/MTUS](http://www.timeuse.org/MTUS)

**Subproject 13: Light/heavy diary comparison**

We have collaborated with ONS in collecting the 2005 “Light Diary” Sample, and comparing earlier light diary materials with the 2001 ONS study.

**Subprojects 14 and 15**

The comparison of diary and questionnaire approaches to measuring time use has been a major focus of our work. One outcome of this ongoing work is the production of the BHPS Calibrated Time Use Dataset, available from the data Archive (SN5363).
4 Activities

Throughout the project the whole CTUR team has been active in attending and giving presentations at academic conferences. Senior members are frequently invited to give plenary lectures, often in major international conferences (e.g., Gershuny at the American Sociological Association Conference 2008; Gershuny and Kan at the XVI ISA World Congress of Sociology 2006), and junior researchers are also particularly active in the dissemination of research at national and international conferences (e.g. Kan and Lesnard at the 7th International Sociological Association Conference on Social Science Methodology 2008; Kan at the annual conferences of the International Association of Time Use Research 2005, 2006 and 2007; Sevilla-Sanz at conferences of the European Association of Labour Economists and the European Economic Association, 2008). Active participation in conference organization and preparation has also been a feature of CTUR staff activity (for example, Fisher has been a key member of the organising committee of successive International Association of Time Use Research conferences: in Halifax 2006; Washington 2007; and Sydney 2008).

We also take every opportunity to contribute to policy forums: making presentations most recently to the Equalities Commission, and to the Annual Joint Meeting of the British and German Trades Union Congresses, and to various Directorate Generals in Brussels.

CTUR researchers contribute to workshops and courses: each year to ESRC Science Week and Methods Festivals. From 2004-2007 Fisher contributed a course on analysing time use data for the ESRC-funded Essex Summer School in Social Science Data Analysis, which services both ESRC funded UK students and international research students/young researchers. The International Association of Time Use Research annual conference is also preceded or followed each year by a short training course offered by CTUR members.

In July 2007 a consultation document was sent out to all MTUS and AHTUS users registered with the CTUR requesting their input to the upgrading of the MTUS data archive. Following this a MTUS User Consultation Meeting was held in Washington in October 2007. User's contributions are processed through our website:--visit: http://www.timeuse.org/mtus/contributions/

CTUR has two important network engagements. It is actively involved as a research 'node' of the ESRC Gender Inequality Network (GeNet). Staff regularly attend GeNet meetings, presenting papers at the GeNet conferences (e.g. Gershuny and Kan 2004; 2006) and contributing substantially to the publications arising from the GeNet project. In the summer of 2008 the Governing Body of the EU Seventh Framework Network of Excellence EQUALSOC agreed to include CTUR as part of its FAMNET project coordinated by Chiara Saraceno.
5 Outputs

Our <www.timeuse.org> website is a major resource, with an unparalleled range and detail of information on the history and practise of time use analysis, as well as a major download site for time use data and documentation. It currently receives around 10,000 “hits” per year, from every continent, and indeed (see the statistics generated from the map on the homepage) from a majority of the countries in the UN.

The output of the CTUR team in respect of publications over the period of the grant has been very high, comprising 28 articles in refereed journals (17 of these being direct consequences of work on this project); 2 edited books; 17 book chapters; 13 reports to government and other agencies; and 13 departmental series working papers not yet published. In addition, a further 9 articles are currently under review for publication in refereed journals. A full list of the scientific publications arising from the project is attached as Appendix 1. The key substantive findings of these publications are discussed above in the sections describing the major results of the subprojects.

MTUS harmonized data Version 5.5 has been upgraded, completed and made available to users. Versions 5.52 and 5.53 of the MTUS are already on the CTUR website; versions 5.8 and 6.0 are also available in test data form. Major improvements have involved: adding further surveys; improving the processing of data; adding new background variables and developing new time use variables. 50 time use surveys, representing 20 countries and over 500,000 diary days are now included in versions 5.52 and 5.53 combined.

In addition to the MTUS, the group won an international competition to prepare US comparative historical data for release as a harmonized dataset. The initial development of the AHTUS (first released May 2006) was conducted under an agreement with Yale University (Program on Non-Market Accounts); it was funded by the Glaser Progress Foundation., and sponsored by the US National Academy of Sciences’ Panel of National Accounts. The dataset is downloadable from our website.

6. Impacts

MTUS and AHTUS currently have over 350 current registered users worldwide. And their usage in academic publication outside the CTUR is growing substantially.
Our intention is to promote a further substantial increase in this usage. We have started discussions with the Director of the Luxembourg Income Study (with which MTUS shares many characteristics) about a joint promotion strategy.

7. Future Research Priorities

There is currently discussion of whether the UK should participate in the 2010 round of the Eurostat Harmonized European Time Use Study. The CTUR has written a case in support of a UK 2010-11 Time Use Survey to the ESRC Resources Board, stressing the importance of a European time use data series incorporating the latest methodological advances in respect of design and collection, and ensuring comparability with previous data and across countries.

The CTUR has successfully applied to the ESRC for a large grant (starting 01/10/2008) to continue to develop its substantive and methodological research contributions, as well as continuing to upgrade and make available the MTUS database to the user community. Initial priorities for this work are listed where appropriate in previous sections.
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APPENDIX Resource and Resource-Related Projects

Subproject 11: UK data series including couples and young persons files

The objective was to make possible the analysis of a long sequence of UK time use studies dating from the 1960s to the 21st century through the construction of a series of comparable data sets, and including files of couples and young persons' data. The UK data series has been upgraded to Version 5.52 of the MTUS, with year 2000 files being available in Version 5.8 and 6.0 as well. The UK joins the USA in having the longest sequence of time use diary surveys available in the MTUS, a total of 6 surveys spanning four decades.

Couples data:

A UK couples data set including data series from 1974-2001 is ready to be made available to the research community next year. In addition, Versions 5.53 and 5.8 of the MTUS now include partner identification and joint diary quality markers which enable researchers to produce a customised file of couples for any MTUS survey which includes a sample of couples.

Young persons' data:

Additional data files covering diarists aged less than 18 for those studies where this information was collected will be available with MTUS versions 5.8 and 6.0, and have been made available currently as test data for three countries: the UK 1974-75 and 2000-01; Germany 1991-92; and Australia 1974 (see also sub-project 12 below). This structure will enable the addition of some child-only time use studies to future versions of the MTUS.

Subproject 12: MTUS Version 5.5 completion, inception of Version 6.0

The major objective under this subproject was the extension of MTUS Version 5.0 to include more countries and the most recent datasets, and the initial pilot stage of MTUS Version 6 dataset, which will for the first time include the diary data in a harmonised sequential format.

The older versions of the MTUS (World 5.0 and earlier) covered only the working-age population (20-59) in 25 studies from 20 countries. Version 5.52 doubled the numbers of surveys included in the study, covers the full adult age range and has a number of further background variables added. The newest version (World 5.53) adds a further 14 background variables which provide greater compatibility with the Harmonized European Time Use Study (HETUS) surveys (now incorporated into the MTUS) including couple identifiers (see sub-project 11 above); age of youngest child; individual occupation; public or private sector employment; whether the household owns a computer; how many cars the household owns; whether the individual is responsible for caring for a dependent adult or child with disabilities and self-reported state of health. Data files are also being released for the first time in STATA format.
A total of 47 studies are now included in versions 5.52 and 5.53 combined, representing over 20 countries and more than 1/2 million diary days. Versions 5.8 and 6.0 are currently well into development, and are being tested for a few key countries. Version 5.8 expands the activity code list to a new 69 code list (from 41), while Version 6 includes activity sequence data (for those countries for which this is available) covering main and secondary activities, location and co-presence. Future releases of updated MTUS data are planned for January 2009, March 2009, August 2009 and December 2009.

Continuing efforts are made to add more studies to the MTUS from countries which have not so far contributed data, in particular from the Asian region, and interest is indicated by Fisher being invited to Japan to give a presentation on the MTUS with the hope of attracting future data contributions from Asia.

**Subproject 13: Light/heavy diary comparison**

Subproject 13 aims to investigate the effects of non response by comparing 'light' diaries (relatively low respondent burden diaries, with short observation windows and precoded activity categories rather than 'own words' recording of activities) with 'heavy' (high respondent burden) diary studies. This subproject was jointly undertaken with the ONS, who had an interest in comparing the pre-coded diary instrument attached to the Omnibus survey of 2001 and the ONS time use survey 'own words' diary conducted in 2000 (as the UK contribution to the HETUS) in order to design the diary component of the 2005 Omnibus survey.

The main publication was a joint one between Gershuny and members of the ONS staff (Lader, Short and Gershuny 2006), in which conclusions and recommendations resulting from the comparison are outlined (in Appendix 1). In brief it was found that the light Omnibus diary provides comparable results to the full scale diary survey for the main sub-categories of the population, and therefore can provide a broad indicator of major changes in time use between full time use surveys. For certain categories of the population (notably the elderly), the interviewer-administered light Omnibus diary proved to be more representative than the self-complete TUS. It was concluded that although weighting within the main subcategories of the population made little difference to the within-category results, the light Omnibus diary should be weighted for non-response to make the whole sample representative. This procedure was implemented for the 2005 ONS Omnibus diary.

**Subproject 14: Using questionnaires with diary estimates**

The overall aim of this previously untested methodology was to investigate the possibility of arriving at reliable long-term time use accounts at an aggregate level through combining regression-based estimates of time use for population subgroups from diary data with large-scale questionnaire based survey data. Related aims were to explore the use of multi-stage regression approaches (such as Heckman or Tobit regression), with the participation frequency variables in the selection stage, so as to estimate 'corrected' individual level time-use estimates.
One major methodological outcome from this area of research contradicts a view (currently fashionable among some journal reviewers) that time diary data on infrequent activities (with large proportions of respondents not participating in activities during the diary observation period) should be modelled using Tobit rather than OLS regression. Gershuny and Egerton, (under review) conclude that this view is incorrect. They use surveys with long diaries (7 and 21 days) which therefore show relatively few zero time-use values, which have been split into single days with more zero values as a result—even though they sample the same population of individuals and days—to show empirically that Tobit-based analyses lead to inappropriate estimations of the volume and distribution of time spent in activities across populations. Conclusions from substantive research associated with this subproject are summarized under Subproject 8.

**Subproject 15: calibration of BHPS time-use questions**

Because of concerns about sample attrition rates, many panel studies with a special interest in respondents’ time use deploy questionnaire-type instruments rather than time use diaries in order to arrive at an estimate of the time spent in particular activities. But although they are widely used, the general view is that stylised estimate questions are subject to systematic biases. Gershuny and Robinson (under review) use the 7-day work schedule instrument attached to the 2001 UK national time use study, which also collects two days of diary material, to demonstrate that much of the error relates to irregularity in daily and weekly work patterns, such that respondents to the standard LFS “how many hours did you work last week?” questions, simply did not know the answers: for example, men tend to over-estimate their work time, whilst women consistently under-estimate. They also use the panel element of the HoL study to demonstrate that, while a random 'regression to the mean' effect is evident, around four fifths of the variation between the diary and questionnaire estimates is systematic.

HoL provides the opportunity to compare stylised with diary estimates from the same individuals. In addition, it includes exactly the same time-use related stylised questionnaire items as the British Household Panel Study (BHPS), permitting (on the assumption that the diary estimates are the more reliable) calibration of the BHPS questions. Kan and Pudney in *Sociological Methodology* compare stylised questions and diary reports for the HoL study, and stylised questions from the BHPS (Kan and Pudney 2008). They find that stylised estimates are subject to both random and systematic biases, and provide methods for correcting for the biases introduced by random measurement errors in both types of estimate. Kan and Gershuny 2006 provide a calibrated index of time-use patterns based on BHPS questionnaire items using a different methodology. This joint work between Kan and Gershuny at the CTUR in Oxford and Pudney and others at ISER in Essex continues to be a priority for both groups.
Time Use Studies: Daily Life and Social Change

Publications

Papers in refereed journals

(Articles directly resulting from grant RES-000-23-0704-A marked with an asterix)


Voorpostel M, J Gershuny and T Van der Lippe (forthcoming 2009) “Spending Time Together: Changes in Joint Activities of Couples over Four Decades” *Social Indicators Research*”


**Papers under review:**

Delaat, J. and Sevilla-Sanz, A. “Working Women, Men’s Home Time and Lowest Low Fertility” *

Fernandez, C. & Sevilla-Sanz, A. “Social Norms and Household Time Allocation” *

Gershuny, J. ‘Time-use and the comprehensive accounting of social and economic activity’ *


Gershuny, J. and John Robinson “Workweek Estimate vs Diaries: Differences and Regression to the Mean” *

Gershuny, J. and Egerton, Muriel “Time and Participation: Modelling Unpaid Work using Time Diary Data - A framework for investigating the suitability of OLS for modelling diary-derived time-use dependent variables.” *

Gimenez, I & Sevilla-Sanz, A “A Note on Leisure Inequality in the US: 1965-2003”

Katz, Tally and Oriel Sullivan 'Voracious cultural participation: intertwining of gender and social status'
Sevilla-Sanz, A. “Division of Household Labor and Cross-Country Differences in Household Formation Rates” *

Sullivan, O. 'Changing differences in the division of domestic labour: the case of education' *

Sullivan, O. Scott Coltrane, Linda McAnnally and Evrim Altintas. 'Father-friendly policies and time use data in a cross-national context: potential and prospects for future research' (invited paper submitted for special issue of American Annals of Political and Social Science*

**Edited books:**


**Chapters of books:**


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Reports to government and other agencies


http://www.learning.wales.gov.uk/pdfs/students/briefingnote2-e.pdf


Working papers


Colchester: University of Essex.*


Datasets

**Multinational Time Use Study**, Versions World 5.5.3, 5.80 and 6.0 (released 14 November 2008). Created by Jonathan Gershuny and Kimberly Fisher, with Evrim Altintas, Alyssa Borkosky, Anita Bortnik, Donna Dosman, Cara Fedick, Tyler Frederick, Anne H. Gauthier, Sally Jones, Jiweon Jun, Qianhan Lin, Tingting Lu, Fiona Lui, Leslie MacRae, Berenice Monna, José Ignacio Giménez Nadal, Monica Pauls, Cori Pawlak, Nuno Torres and Charlemaigne Victorino. Centre for Time Use Research, University of Oxford, Oxford, UK.


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