

Time Use Statistics in the Context of Social Statistics

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Explanation of terms: For the purposes of this paper, time use statistics refer to quantitative summaries of how individuals spend or allocate their time over specified period. Social statistics usually refers to the use of statistical methods for studying human behavior in a social environment. In recent period of time there is a growing tendency to introduce quantitative social science based on use of statistical measurement for different areas such as politics. However, for the purposes of this paper the term “social statistics” refers to the collection of numerical data on social phenomena conducted by official national statistical agencies.

Scope of time use surveys

Time use statistics are quantitative summaries of how individuals “spend” or allocate their time over a specified period – typically over the 24 hours of a day or over the 7 days of a week¹. Measuring the time use of individuals and families was introduced at the beginning of the 20th century with a purpose to address different social concerns related to the use of labor force, early industrialization and its effects on society. Building on such a foundation, these surveys were frequently applied in the former USSR until the 1960’s.

In early 1960’s a major attempt at establishing international standards and allowing an international comparison of different uses of time in market and planned economies was undertaken by Alexandre Szalai and his project in twelve western and eastern countries which resulted in a major publication² that provided an additional and substantial support in terms of exploring further and in more details this statistical instrument.

Data users recognized the comprehensive set of data relevant to measuring paid and unpaid work that these surveys generated. Since then, time use surveys started to be regarded as a powerful tool for monitoring both economic and social phenomena³.

¹ *Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work*, United Nations Publication, Sales No. E.04.XVII.7, New York, NY, 2004, paragraph 5.

² *The use of Time: Daily Activities of Urban and Suburban Populations in Twelve Countries*, Alexandre Szalai (ed), European Coordination Centre, The Hague, Mouton, 1972.

³ This would be just a very short overview of the origins of time use surveys. Much more detailed descriptions are available in a number of sources. Listed here are just few: *Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work*, United Nations Publication, Sales No. E.04.XVII.7, New York, NY, 2004; *Background to the methods used in Time Budget Survey*, Koen Breedveld, Andries van der Broek and Frank Huysmans, Statistics Netherlands as per:

http://www.unece.org/stats/gender/timeuse/PapersMethodologicalIssues/Background_to_the_Methods.pdf;

More recently, in the past decade or so national statistical systems conducted a thorough evaluation of the data needs that can be satisfied by conducting time use surveys, more specifically on the expected applications of the data collected by time use surveys. These consultations were as comprehensive as possible, involving stakeholders of governmental, non-governmental and academic provenance.

In one of such recent evaluation by Statistics New Zealand⁴, time use data were discussed from the point of view of their application in different areas of economic and social concerns. Below is an abridged list and elaboration for each:

Economic: National accounts cover market production and tend to exclude production in households. Time use data allow for developing satellite accounts to quantify household production and not-for-profit activities. It is of crucial importance to highlight the differences in unpaid work between women and men.

Energy consumption: Time use data can be used to obtain a better grasp on individuals' patterns of energy consumption – this is achieved by generating the information on the use of cars, other motor vehicles and other energy-consuming devices.

Social – Leisure and recreation: One of the most used parts of time use datasets refers to evaluating the availability and use of free time, i.e. leisure and recreational activities. Lack of these activities results in deterioration of overall health of individuals and has adverse impact on social wellbeing. The concept of the quality of leisure time gains on importance as the data indicate differences in the manner leisure time is spent by men and women.

Social – Culture and identity: Time use data allow an insight in the cultural preferences of the population that provides an opportunity to evaluate the impact of different events.

Paid work: There are a number of applications of time use data when it comes to monitoring paid work. There is the issue of work-life balance, i.e. the period of time spent on paid work versus leisure time. It can also provide an answer to the question on how much paid work is taken home, the impact of different shifts to time spent with families, pattern of scheduling different activities (paid work, household needs, personal needs and leisure).

Social connectedness: Time use data are invaluable in measuring the frequency and characteristics of social interactions of people in various settings. This is also crucial in terms of evaluating the functioning of basic social constructs, such as a family, by shading the light on the time spent with family members.

the website of the International Association of Time Use Research (IATUR) at:
<http://www.stmarys.ca/partners/iatur/index.htm>.

⁴ *Time Use Scoping Paper*, Statistics New Zealand – Tatauranga Aotearoa, Wellington, New Zealand, August 2007, at: <http://www.stats.govt.nz/NR/rdonlyres/4D9A7125-C5FB-4F19-BFEE-A3024BE87108/0/TimeUseSurveyScopingPaper.pdf>

Knowledge and skills: From the point of view of transferring knowledge to younger generations, time use data provide a reliable source for estimating the amount of time parents devote to their children. As for generations already involved in institutionalized educational programmes, time use surveys provide a source of information on their preferences (formal learning, self-study).

Standard of living: Unpaid work is crucial for ensuring a certain level of standard of living as it is a major contributor to household and family functioning, providing essential services to people inside the household that would otherwise have to be paid for. Time use survey provide information on the amount of time spent on household work, who does this work and how it is fitted around other activities and commitments, such as paid work or caring for children⁵.

Population groups – Older people: Having more time on their hands on a daily basis, and having more years ahead of them, the use of time of elderly population necessitates further research, given the considerable provision of volunteer and informal help they provide. Time use surveys meet these needs.

Population groups – Youth: The impact of the use of contemporary information and communication devices by this part of the population and its impact their behavior and patterns is of particular interest to policy makers and social and educational workers designing social and educational programmes for the youth. There is also a number of other concerns related to the youth that can be addresses by the time use survey such as the time spent within families, unpaid work and so forth.

Population groups – Children: When included, the diaries of daily time use for children provide a wealth of statistics allowing establishing the relationship between family structure and child's use of time, type and characteristics of activities spent with parents, time spent in sedentary activities (watching television, video) and so forth.

Health – Second hand tobacco exposure: With some adjustments, time use surveys data can provide an information on second-hand tobacco exposure, especially if the “who with” component is included in the basic methodology.

Health – Exercise and sedentary activity: There is a possibility to expand the survey itself by attaching GPS devices or accelerometers to respondents that would record automatically their movements.

Health – Occupational health and safety: Time use survey can be calibrated to measure the risk of exposure to some of occupational hazards – time spent working on computers, for example, increases the risks of some health problems.

Health – Infectious disease transmission: Data generated by time use surveys related social contacts, their frequency and patterns can be a very useful input in modeling possible patterns of spreading of an infectious disease.

⁵ Ibid.

Time use surveys occupy a peculiar place in contemporary national statistical systems as they can provide a wealth of data related to quantifying social and economic phenomena. This is also due to the fact that they fill the gaps for many of crucial questions related to the differences in the status of men and women, generating the much needed gender disaggregated social statistics. The importance of time use surveys for social statistics, therefore, encompasses a number of areas starting from paid and unpaid work, division of labor within families, characteristics of family live, social connectedness, civic participation, standard of living and the differences between men and women in participation in the labor market, education and cultural activities.

With the emergence of developing countries on the scene, time use surveys have acquired a new focus. These countries have seen several additional uses of these surveys, such as netting economic work of the poor (men and women both) and improving thereby the work force/labor force statistics; improving estimates of national income by getting better data on SNA activities, including additional activities into the national accounts system incorporated in the 1993 SNA; and drawing useful policy guidelines for poverty reduction, employment generation and welfare promotion. These countries are gradually evolving suitable concepts, survey methodology, classification of activities and valuation techniques.⁶

For example, in the Philippines, a combination of generating satellite accounts and the recent time use survey enabled more accurate estimates of the contribution of women to the Gross Domestic Product (GDP). The unpaid work, based on these results, adds 66% to the GDP; women's share in conventional GDP that was at 39% rose to 47% when adjusted for the unpaid work; women account for 60% of all unpaid work and over 55% of this contribution was performed by women not in the labor force⁷.

This need for quantifying unpaid work is not limited to developing countries. Recently such a need is strongly emphasized in developed countries as well. For example, in Italy, the amount of unpaid work renders more urgent the estimate of a satellite account which assigns an economic value to the productive activities performed by households and, in particular, by Italian women. In practical terms, regular official statistics of unpaid work and production don't exist and the knowledge of the economic value of the households' value added seems difficult to gain and to compare⁸.

⁶ *Time Use Surveys: Concept, Classification and Related Issues, Lessons From the Indian Pilot Time Use Survey*, Indira Hirway, as per: <http://www.eclac.org/mujer/noticias/noticias/3/22983/IndiraEUTStwsa-09.pdf>.

⁷ *Measuring Women in Poverty and Access to Resources - the Philippine Experience*. Jessamyn O. Encarnacion, National Statistical Coordination Board, Philippines, as presented at the Global Forum on Gender Statistics, Rome, Italy, 10-12 December 2007, available at: http://unstats.un.org/unsd/demographic/meetings/wshops/Gender_Statistics_10Dec07_Rome/docs/4.1_Philippines.ppt.

⁸ *Paid and unpaid work: perspectives for analysis*, Maria Clelia Romano and Rita Ranaldi National Statistical Institute of Italy (Istat), Global Forum on Gender Statistics, Rome, Italy, 10-12 December 2008, at: http://unstats.un.org/unsd/demographic/meetings/wshops/Gender_Statistics_10Dec07_Rome/docs/5.2_Romano.pdf.

Hence, the provision of data for assessing the status of women and their contribution to the overall wellbeing is often overlooked and poorly supported by reliable statistics. It is for this reason that the newly launched Global Gender Statistics Programme⁹ focuses specifically on time use statistics as an important link in meeting the Programme's essential goal, which is to enhance the capacity of countries to collect, disseminate and use quality statistics and indicators to assess the relative situation of women and men in various areas of policy concerns.

In addition to providing a tool for measuring unpaid work, time use surveys provide valuable snapshots on everyday life. For example, results of the 2006 American Time Use Survey¹⁰ show that, on average day:

- 84 percent of women and 64 percent of men spent some time doing household activities, such as housework, cooking, lawn care, or financial and other household management
- On the days that they did household activities, women spent an average of 2.7 hours on such activities while men spent 2.1 hours
- On an average day, 20 percent of men did housework--such as cleaning or doing laundry--compared with 52 percent of women. Thirty-seven percent of men did food preparation or cleanup, compared with 65 percent of women.

Methodological issues

Time use surveys fall in the category of more complex statistical exercises in terms of methodology. As this paper does not aim at discussing the methodological issues in detail¹¹, just few will be mentioned for illustrative purposes.

There are three types of units of enumeration: a household, a household member and time. While the selection of households for conducting time use survey does not differ from other household surveys conducted within the national statistical system, the selection of household member requires additional decision-making mechanism to provide answers to questions such as the whether to include more than one member of the household and what would be the age limit for children, for example.

Having the third dimension, time, adds additional complexity to the sample design. Provided that the unit of time for the survey is a day, to how many parts should a day be divided – ten-minute intervals, one-hour intervals? As the activities depend on specific days of the week the sampling should strive to ensure a proper representation of all days in a week. Of specific concern is the size of the sample, especially taking into consideration the need to provide breakdowns by age, gender, education, ethnicity and so

⁹ Launched in December 2007. Details are available at:

¹⁰ As per: <http://www.bls.gov/news.release/atus.nr0.htm>.

¹¹ They are elaborated in *Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work*, United Nations Publication, Sales No. E.04.XVII.7, New York, NY, 2004.

forth on one side, and the need to ensure the availability of data on various sub-national levels.

Classification of time use

As with all the other statistical exercises, one of the crucial components from the methodological point of view is the classification of time use. It needs to be exhaustive and comprehensive, and to allow for a reasonable ease of coding. Individuals undertake a gamut of different activities and to categorize them in a meaningful manner represents a challenge. While developing a classification it is also important to well define the purpose of the classification, since that would govern the identification and branching of individual activities.

The United Nations Statistics Division developed the trial International Classification of Activities for Time-Use Statistics (ICATUS) in the 1990's. The framework of this classification is designed in such a way to allow not only collecting data on time use but also enabling the measurement of unpaid work. Therefore, in defining and categorization of activities performed by individuals the type of activity is complemented by the purpose of the activity.

Consequently, one activity, such as cooking, for example, is classified in different groups depending on the purpose of cooking, whether it is done within work (professional cook), in the household but for sale on the local market, or in the household but for household consumption. Distinguishing these activities in this manner allows for aggregations that quantify unpaid work, thus allowing for the adjustment of the Gross Domestic Product (GDP) as per the examples above.

National statistical authorities are invited to test ICATUS in their own time use surveys and provide feedback and experiences that will enable further fine-tuning of this instrument.

EUROSTAT, the Statistical Office of the European Union, launched in 2000 the Harmonized European Time Use Surveys (HETUS) and developed an accompanying classification of time use. Time use activities are categorized into six basic groups for the simplified classification¹²:

- *Gainful work, study* includes time spent on main and second jobs and related activities, breaks and travel during working hours, and on job seeking. The time spent on study at school and during free time is combined with gainful work.
- *Domestic work* includes housework, child and adult care, gardening and pet care, construction and repairs, shopping and services, and household management.
- *Travel* includes commuting and trips connected with all kinds of activities, except travel during working hours.

¹² Comparable time use statistics Main results for Spain, Italy, Latvia, Lithuania and Poland, February 2006, European Communities, Luxembourg, 2006, as per:
http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-CC-06-006/EN/KS-CC-06-006-EN.PDF.

- *Sleep* includes sleep during night or daytime, waiting for sleep, naps, as well as passive lying in bed because of sickness.
- *Meals, personal care* includes meals, snacks and drinks, dressing, personal hygiene, making up, shaving, sexual activities and personal healthcare.
- *Free time, unspecified time use* includes all other kinds of activities, e.g. volunteer work and meetings, helping other households, socializing and entertainment, sports and outdoor activities, hobbies and games, reading, watching TV, resting or doing nothing.

In general, the major divisions of the ICATUS correspond to one-digit codes of HETUS; ICATUS has more main categories corresponding to the one digit HETUS codes for employment, household and family care and social life and entertainment¹³. There are several differences¹⁴ but there is also a correspondence table relating ICATUS and HETUS¹⁵ thus enabling harmonization to a large extent.

Time use surveys since 1990

The United Nations Statistics Division monitors, among other statistical activities, the introduction of time use surveys in national statistical systems. To that end, it maintains a website¹⁶ with information regarding time surveys that were conducted at national levels. For the purpose of this paper, 1990 was designated as a starting point for presenting the basic characteristics of national data collections on time use.

A total of sixty-two countries conducted at least one national or pilot time use survey¹⁷ in the period 1990-2008, according to the information collected by the United Nations Statistics Division, as presented on the world map below and in table 1. It is apparent that these surveys were conducted by developed countries by a large margin.

Not all of the sixty-two countries conducted a full-fledge time survey at the national level. Namely in seven countries (Albania, Armenia, Greece, Indonesia, Nigeria, the Philippines and Slovak Republic) these were pilot surveys, with a goal of testing instruments and data collection procedures and the results would not be representative for the country.

In addition, in three countries (Denmark, Ireland and Tanzania) the time use survey was not conducted by the national statistical office, but by other agency, thus indicating that the survey is not firmly established in the national statistical system.

¹³ *Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work*, United Nations Publication, Sales No. E.04.XVII.7, New York, NY, 2004, paragraph 847, page 199.

¹⁴ Ibid, elaborated in detail.

¹⁵ Ibid, Annex 22, page 366.

¹⁶ Please see: <http://unstats.un.org/unsd/demographic/sconcerns/tuse/default.aspx>.

¹⁷ Time use survey here refers to a survey conducted at the national level, based on standard sampling techniques covering all of the territory. There were a number of surveys conducted at the sub-national or local level, and those are not included in this overview. Also excluded are surveys that captured only certain activities (such as time spent watching television, of which a number of were conducted by broadcasting agencies and companies).

Therefore, there were fifty-two countries that conducted a national time use survey either by the statistical or some other agency. Of those, only twelve countries conducted more than one survey in the period 1990-2008 (Australia, Canada, Japan, Latvia, Lithuania, Germany, Netherlands, New Zealand, Poland, South Africa, United Kingdom and United States). Another six countries conducted a pilot and a full-fledged survey (Romania, Slovenia, Spain, Sweden, TFYR Macedonia and Turkey) while the Slovak Republic conducted two pilots in this period.

For eight countries the only information available refers to the fact that a time use survey was conducted and this is noted in the column “Comment” in table 1.

Graph 1. Countries that conducted a time use survey at least once in the period 1990-2008

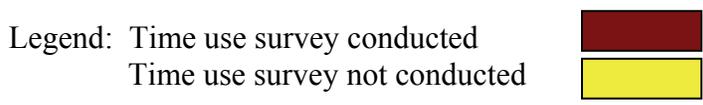
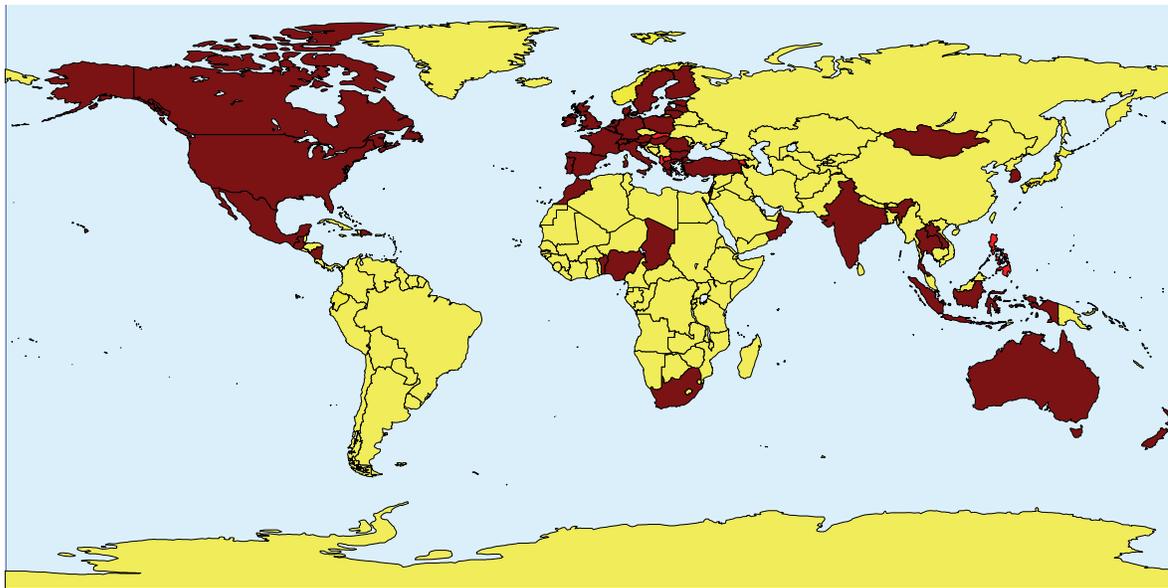


Table 1. Countries that conducted time use survey(s), by reference year, 1990-2008

Country name	Reference year(s)		Comment
	Most recent	Previous (since 1990)	
Albania	1996		Pilot
Armenia	2004		Pilot
Australia	1997	1992	

Country name	Reference year(s)		Comment
	Most recent	Previous (since 1990)	
Austria	1992		
Belgium	1998-2000		
Benin	1998		
Bolivia	2001		Module on unpaid domestic work Information incomplete
Bulgaria	2001-2002		
Cambodia	2003-04		Information incomplete
Canada	2005	1998	
Chad	1995		Information incomplete
Cuba	2001		Information incomplete
Denmark	2001		Not by NSO
Dominican Republic	1995		Not published in its entirety
Ecuador	2005		Information incomplete
Estonia	1999-2000		
Finland	1999-2000		
France	1999		
Germany	2001-2002	1991-1992	
Greece	1996		Pilot
Guatemala	2000		
Hungary	1999-2000		
India	1999		
Indonesia	1998-1999		Pilot
Ireland	2005		Not by NSO
Israel	1991-1992		
Italy	2002-2003		
Japan	2001	1996	
Lao	1998		
Latvia	2003	1996	
Lithuania	2003	1990	
Luxembourg	1996		
TFYR Macedonia	2004	1996 (pilot)	
Malaysia	2003		Information incomplete
Mexico	1998		
Mongolia	2000		HHs were paid to participate
Morocco	1997-1998		
Netherlands	2000	1998	
New Zealand	1998-1999	1990	
Nicaragua	1998		
Nigeria	1998		Pilot
Norway	2000-2001		
Oman	1999		Module of Household Expenditure Survey
Occupied Palestinian Territory	1999-2000		

Country name	Reference year(s)		Comment
	Most recent	Previous (since 1990)	
Paraguay	1997-98		Information incomplete
Philippines	2000		Pilot
Poland	2001	1996	
Portugal	1999		
Romania	2001	1996	1996 was a pilot
Slovak Republic	2006	1996	Both are pilots
Slovenia	2000-2001	1996	1996 was a pilot
South Africa	2000	1996	
Republic of Korea	1999		
Spain	2002-2003	1996	1996 was a pilot
Sweden	2000-2001	1996	1996 was a pilot
Switzerland	2001		
Tanzania	2005	2003 (pilot)	Not by NSO
Thailand	2000-2001		
Turkey	2006	1996	1996 was a pilot
United Kingdom	2005	2000	
United States	2006	2005	
Viet Nam			Information incomplete
Note: NSO stands for National Statistical Office HHs stands for households			

Data above indicate that time use surveys are not completely integrated as regular surveys within national statistical systems. The fact that only twelve countries conducted more than one survey supports this observation.

How often should national statistical offices undertake time use surveys? The answer to that question varies, but it appears that the minimum time between two such surveys is five years. The manner in which individuals use their time is not prone to sudden and prompt changes and the approach of the population and housing census may be adopted for time use surveys as well, that is, at least once in every ten years. New Zealand, for example, in its revised schedule of statistical data collection activities, designated eight years between two time use surveys as the most appropriate timing.

Concluding remarks

Time use surveys are powerful statistical instrument in the field of social and economics statistics. The wealth of different uses for collected data clearly places time use surveys high on the priority list of national statistical authorities, since they feed the need for data on division of labor within families, characteristics of family life, social connectedness, civic participation, standard of living and the differences between men and women in participation in the labor market, education and cultural activities. Time use surveys are

also indispensable in measuring paid and unpaid work, thus allowing for adjustments of the GDP and assessing the gender-disaggregated contribution to it.

In the context and for the purpose of providing guidance to national statistical authorities in this area, it would be useful to design and develop an international programme akin to the 2010 World Programme on Population and Housing Censuses, established by the United Nations Statistical Commission, that has three primary goals:

- to agree on a set of acceptable international principles and recommendations governing the conduct of a census;
- to facilitate countries in conducting censuses during the period 2005-2014; and
- to assist countries in their efforts to disseminate census results in a timely manner.

Consequently, the programme on time use survey, placed under the more Global Gender Statistics Programme, would encourage every country to:

- conduct such a survey at least once every ten years,
- implement international guidelines and statistical standards,
- disseminate results in a timely manner.

The overview of time use surveys conducted in the past 18 years¹⁸ points to the gap in capacity to conduct these surveys in developed versus developing countries. In that respect it is necessary to establish procedures for fostering the exchange of experiences and training in conducting and exploiting time use surveys. This is especially important given the gap that these surveys can fill in terms of meeting the goals of many international conferences, primarily the Fourth World Conference on Women, held in Beijing, China, in 1995.

¹⁸ See Table 1 above.