8. Lessons from the Buenos Aires Time-Use Survey: A Methodological Assessment

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## 8.1 INTRODUCTION

Supported by the women's movement and in the spirit of the Beijing Platform for Action, the Buenos Aires legislature passed a law at the end of 2003 (*Ley N° 1168,* 4 December 2003) that mandated the Directorate-General of Statistics and Census of the city government (*Dirección General de Estadística y Censos, DGEyC)* to collect information on the distribution of time-use by women and men living in the city of Buenos Aires on a systematic and periodic basis (Consejo Nacional de la Mujer, 2006). The primary purpose of such survey would be to quantify unpaid care work performed mostly by women in the household. According to the same law, the findings of this survey are to be used to promote policies focused on enhancing the living conditions of women, and on the equitable integration of women and men into society.

As a result of this mandate, in November–December 2005 the DGEyC decided to conduct a time-use survey in Buenos Aires as a module of its Annual Household Survey. This time-use survey was the first to be conducted in the country following the publication of United Nations guidelines (UNSTAT, 2005).[1] Its methodological approach builds from the 2000 South African Time-Use Survey—albeit in a smaller geographical scale (Budlender, 2007)—though a closer look reveals a number of methodological variations, particularly with respect to fieldwork organization, activity classification and the way simultaneous activities are captured. The Buenos Aires Time-Use Survey is also a unique experience in the Latin American context since, in spite of being a module attached to an ongoing multipurpose household survey, it departed from the widely used short tasks list approach to collecting time-use data using the 24-hour recall activity diary

(Esquivel, 2008a). The survey was collected under a cooperation agreement between DGEyC and *Instituto de Ciencias,* Universidad Nacional de General Sarmiento, Argentina.[2] As a researcher from the university, I have been in charge of designing the Buenos Aires Time-Use Survey's methodological approach (DGEyC, 2007a:7). My role within this agreement involved designing survey instruments, coordinating the pilot test and training fieldworkers before fieldwork launching, supervising fieldwork, coordinating the edition, processing and analysis of time-use data and preparing press reports. This was an unusual and fruitful collaboration between statistical information producers and academia—who are typically only end users of it. This fact allowed for finding satisfactory solutions to the many tensions involved in designing and collecting a module attached to an ongoing household survey and shows up in many of its methodological features.

This paper describes the methodological features of the survey and infers useful lessons to replicate the Buenos Aires Time-Use Survey in similar contexts and/or on a nationwide scale.

## 8.2 THE BUENOS AIRES TIME-USE SURVEY

### 8.2.1 Methodological Approach

#### 8.2.1.1 A Module of the 2005 Buenos Aires Annual Household Survey

The Buenos Aires Annual Household Survey is conducted every year since 2003 from October to December by the Directorate-General of Statistics and Census of the city government. This multipurpose household survey collects information on demographics, health, education, migration, labor market (labor force participation; employment, unemployment and underemployment) and earnings to describe the socioeconomic situation of the Buenos Aires city, which has approximately three million people[3] and

which is the biggest Argentinean city, with its capital district accounting for 8 percent of the country's population according to the last National Population Census (2001). The two features that distinguish this survey from other household surveys (notably *EPH,* the urban Continuous Household Survey conducted by INDEC,[4] which produces labor market and poverty indicators at the local and national levels) are its *larger sample size*, which makes it representative of the city's population as a whole *and* of smaller administrative units within the city (*Centros de Gestión y Participación)* as well as its *thematic flexibility*, which has made it possible to explore diverse issues of interest in the past as ad-on modules (DGEyC, 2006:1) and has also allowed incorporation of the time-use module in the 2005 survey.

Typically, ad-on modules are incorporated in the main questionnaire and share the same selection rules. The time-use module, however, was administered using a separate questionnaire. While the main survey collected information on the entire household, the dwelling and on all individual household members, the time-use module collected information from only *one randomly selected household* member between the ages of 15 and 74 (refer to discussion on sampling design).[5] However, as in all time-use surveys, *no one else but she/he who was selected to answer the time-use module is allowed to respond about their own time-use,* hence, one extra household visit (over the two already planned for the survey) was allowed in order to find the designated member. Also, completing the interview on the phone as a last resort was allowed and clear replacement rules were designed in case the selected member could not be contacted (DGEyC, 2005b:3).[6]

The main survey contributed to the time-use survey, as it provided good identification of household members and their ages, which was important to rapidly

single out target population and correctly select at random one respondent for the time-use module. The Annual Household Survey had a well-designed questionnaire reception, which allowed for correcting errors and solving fieldwork problems related to the time-use survey as they arose. Extra resources were provided to complete the time-use survey and to undertake after fieldwork activities—edition, data entry, weights calculation and data processing.

8.2.1.2 Methodological Features of the Survey

8.2.1.2.1 Survey Instrument

The time-use survey had three data collection instruments, the c*over*, which included a selection grid and a list of reasons for nonresponse in case it happened; the 24-hour recall a*ctivity diary,* followed by three probing questions and a question asking whether the day reported was typical; and the *card* aimed at aiding the time-use interview. The a*ctivity dairy* was a closed grid consisting of 48 30-minute long time slots with room for up to three consecutive and/or simultaneous activities. It started 4am of the day before the interview ('yesterday') and lasted until 4am of the interview day (DGEyC, 2005c).[7]

This diary was filled in by fieldworkers (not by respondents) during the interview. Descriptive texts, simultaneity codes and location marks for each activity were filled while the respondent spoke about her/his previous day. Activity codes were added by fieldworkers *after* the interview. Activity diaries were checked for completion when received and eventually edited (refer to discussion on post-fieldwork). The interview was organized through a series of questions that prompted respondents' recall, read aloud by fieldworkers from a *card,* starting by '*What were you doing between …[hour] and … [half an hour later] yesterday?'* Respondents reported in their own words their previous day's activities, starting with their waking time and ending when the respondent went to

sleep. Questions on waking up/going to bed times framed 'yesterday' and avoided both unnecessary repetitions of prompting questions. A question 'confirming' that the person slept between 4am and the time she/he woke up and from the moment she/he went to sleep to 4am of the day of the interview was added to check for sleeping time. A special set of questions was designed to ease the reporting of paid working hours. This again aimed at avoiding unnecessary repetition and identifying activities that were frequently missed because they were performed while doing paid work.

8.2.1.2.2 Probing Questions

Wording of probing questions on child and adult care resulted from the pilot test and aimed at collecting underreported child and adult care time while avoiding affirmative answers from professional paid carers. An extra probing question was included to check whether any of the activities mentioned by respondents were done for pay—thus helping postcoding.

8.2.1.2.3 Simultaneous activities

Respondents were asked whether they did anything else in the same half hour ('*Did you do anything else between …[hour] and … [half an hour later]?'*) once or twice and reported on their activities. Simultaneity was captured by asking *'Did you do (the second activity) at the same time as (the first activity)?'* and, in the case of three activities, asking whether the third activity was performed at the same time as the first activity and at the same time as the second activity. Though complex, the answers to these questions were filled in a built-in grid in every time slot by introducing yes/no codes, which eased interview flow (DGEyC, 2005c). Simultaneous activities were not hierarchical: there was no 'main' and 'secondary' activity, as activity ordering was considered irrelevant. There were specific provisions while training fieldworkers on how to proceed where more than

three activities were reported in a given time slot. Instructions aimed at preserving events—the total duration of an activity—that comprised more than the conflictive time slot and prioritized care activities. However, there was very little need of these provisions because respondents very rarely reported more than three 'true' activities, as defined in the Activity Classification System used (see the point below).

As it was mentioned, the Buenos Aires Time-Use Survey drew heavily on the 2000 South African Time-Use Survey's methodological approach.[8] In particular, the South African 24-hour recall activity diary included up to three nonhierarchical simultaneous activities, simultaneity and location codes, a probing question on childcare and a question on whether the day was typical[9] (Budlender et al, 2001). However, the Buenos Aires survey introduced several methodological changes related to location marks (there was no provision to identify modes of transport) and simultaneity of activities. While in the case of South Africa, an activity could either be simultaneous or consecutive to all others in a given time slot, in the case of the Buenos Aires Time-Use Survey, simultaneity was defined *pair-wise:* two activities were simultaneous if they were performed jointly at the same time. In other words, 'simultaneity is measured within a 30-minute time slot *between pairs of activities'* (DGEyC, 2007b: 7, in Spanish in the original). This allowed for a fairly complex, but exact, method to assign time (duration) to each activity.

8.2.1.2.4 The Buenos Aires Activity Classification System

The Activity Classification System was based on the first trial International Classification of Activities for Time-Use Statistics (10 major divisions ICATUS) and had up to three digits, although the third digit was used to differentiate certain activities (prompted/spontaneously reported, corrected while editing and so on), rather than to

disaggregate them. This classification used only one SNA-work major division (100), while divisions within SNA-work distinguished between first and second jobs rather than employment status. The survey did not use the major divisions 200 and 300 of ICATUS. This is because very little (if any) primary production for self-consumption takes place in the Buenos Aires city and there was no need to differentiate between production for 'establishments' and 'nonestablishments'. The fact that specific questions on labor force participation were asked as part of the core survey (to the survey respondents and to all household members above ten years of age) made this omission relatively safe.[10]

Other major divisions are related to unpaid care work [400, household maintenance; 500, unpaid care for children and/or adults for own household; 600, unpaid community services and help to other households (relatives, friends, and neighbors)] and nonproductive activities (700, education; 800, social and cultural activities; 900, mass media use activities; 000, personal care activities).[11] A particular note should be added on the definition of childcare. Supervision and being on-call were regarded as caring activities, even if they were 'passively' performed (as opposed to the active content implied in the very concept of 'activity'). This feature was particularly emphasized in fieldworkers' training. The Activity Classification System therefore differentiated between active and passive childcare, as well as between spontaneously reported childcare and that reported as a result of the above mentioned probing question. Children 17 years and below were considered as recipients of childcare—even though those between the ages of 15 and 17 were also potential respondents and, as such, also potential care givers.

The Buenos Aires Activity Classification System design was closely related to the length of time slots. Firstly, by encompassing 30 minutes, prompting questions

themselves signaled what a *significant* activity was; for example, respondents did not report on activities that were either too short or thought of as irrelevant (like blowing one's nose). Secondly, 30-minute time slots are associated with a high degree of activity aggregation (as opposed to 10-minute long time slots[12]). Shorter time slots would allow identifying very detailed/precise activities—feeding a baby, changing her/his diapers, cooking, setting the table and so on, would all have their own codes. They are, however, ill-suited to 24-hour recall activity diaries since it becomes extremely burdensome to conduct an interview that asks about the activities performed in 10 or 15 minute intervals for the entire 24-hour day. It is also practically impossible for the respondent to answer such questions.

Indeed, even simultaneity was 'filtered' by the degree of aggregation implied in the classification system. Given simultaneity was defined as *the performance of two (or up to three) different activities at the same time,* a crucial aspect in identifying simultaneous activities was indeed the way activities were defined. Since all actions that become aggregated in a single activity code (for example, cooking and setting the table, feeding a baby, changing her/his diapers) become *indistinct* behind that code (for example, 'preparing meals', 'actively taking care of household children'), simultaneous activities can only take place between *different activities* (for example, between "preparing meals" and "actively taking care of household children"). A lower degree of aggregation would allow us to differentiate between simultaneous/consecutive activities within those that, by construction, become only one (cooking might have happened before setting the table; feeding a baby before changing her/his diapers and so on). Aside from the Activity Classification System, fieldworkers also had an 'activity dictionary' at

their disposal, which listed activities in alphabetical order and their codes, to facilitate coding.

8.2.1.3 Data Collection Approach: How to Fill in Activity Diaries through Face-to-Face Interviews

Compared to self-administered activity diaries, the 24-hour recall activity diary minimizes respondent's burden by shifting responsibility to fieldwork and sampling design. The success of field work ultimately depends on fieldworkers' ability to transform respondents' answers into diary activities. This requires that fieldworkers know the Activity Classification System and can distinguish between activities that were aggregated under the same code (and therefore were written on the same activity line in a given time slot) from those that were not *in the course of the interview*. Following the South African example, it was therefore decided that fieldworkers would post-code activities, a feature that not only guaranteed the gathering of complete diaries in a timely fashion, but also that time-use data was correctly collected in the first place.

Two difficulties were distinguished during the pilot test and emphasized in fieldworkers' training: the avoidance of 'instantaneous' activities and the identification of activities behind respondents' reports. Some plausible answers to the prompting question ('*What were you doing… yesterday?')* were labeled 'instantaneous' activities ('I woke up', 'I arrived at…' and so on) because they are so short that they should not be recorded. Truly, they were not activities at all, but breaking points signaling the moment when an activity ended and a different one started (sleeping/being awake, traveling/being at the destination and so on). To emphasize that these actions should not enter the activity diary, fieldworkers were trained to mark them as breaking points in the diary's right margin. This helped them to be as accurate as they could in their reporting of respondent's

activities, but placed these answers *outside* the activity diary, where they would not take up room from 'true' activities and, therefore, would not be processed. Fieldworkers were trained to identify these activities using examples similar to the above mentioned. The correction of wrongly coded activities during fieldwork showed fieldworkers their mistakes and enhanced the data collection process.[13]

In general, there was a strong emphasis on minimizing respondents' recall effort and reducing interview time, as a pilot test demonstrated that interview time was critical in reducing refusal rates—particularly bearing in mind there were high chances the time-use module would be collected immediately after the core survey.[14]

8.2.1.4 Sampling Design

8.2.1.4.1 Reference population

The 2005 Annual Household Survey used stratified multistage random sampling, based on the last National Population Census.[15] Three sampling frameworks were identified—residential dwellings, hotels/pensions and shanty towns. Sampling framework number on, comprising all residential dwellings, was organized around six independent tranches designed in two stages (first one with replacement, second one without replacement), each of them representative of the *total* Buenos Aires population living in residential dwellings (DGEyC, 2006).

The Buenos Aires Time-Use Survey was collected in tranches one and two of sampling framework number one, between 20 November and 15 December 2005. The different working of sampling in hotels/pensions and shanty towns—that took place over the whole sampling period, from September to December 2005—impeded the collection of time-use data in these subpopulations. As was already mentioned, only one randomly selected household member, either a woman or a man between 15 and 74 years of age,

answered to the activity diary. This contrasts with other surveys that either target two randomly selected household members (the 2000 South African Time-Use Survey) or all household members above a certain age (most of Latin American time-use surveys). The relative small average size of the Buenos Aires city households (2.6 members) provides the rationale behind the choice of only one individual per household.

Also, only one activity diary per sampled individual was collected in order to minimize the fieldwork burden (because it would have required coming back to the household) and ultimately avoid confusion on the reference period (see below). In all, the sample comprised 1408 individuals (815 women and 593 men) who are representative of 1.18 million women and 0.96 million men between the ages of 15 and 74 living in residential dwellings. This excludes population out of age range (children below 15 and seniors over 74) and persons within the age range that live hotels/pensions and shanty towns.[16]

8.2.1.4.2 Reference period

The time-use survey produced estimates for an average day, an average week day and an average weekend day, based on random sampling respondents' 'yesterday'. Random-day sampling was decided on in order to give flexibility to fieldworkers to find the selected household member irrespective of when she/he could be contacted. Indeed, instruction to fieldworkers was 'always ask about yesterday', even if the interview took place in a day of the week that differed from that of the initial household contact.

To guarantee the integrity of the process of receiving completed diaries, monitoring regarding the distribution of data per week day revealed the fact that fewer interviews were conducted on Sundays. Attempts to increase them were not very successful, since their relative underrepresentation was related both to fieldworkers'

working schedules and household members' willingness to answer the interview on Sundays. The final was sample comprised of 16 percent Mondays, 16 percent Tuesdays, 15 percent Wednesdays, 13 percent Thursdays, 18 percent Fridays, 7 percent Saturdays and 14 percent Sundays.

Clearly, Buenos Aires time-use estimates refer to a short period of the year, considered relatively 'normal'. This is, however, an assumption. The Buenos Aires Time-Use Survey cannot provide information on seasonal variations.

8.2.1.5 Post-fieldwork

8.2.1.5.1 Editing, data entry and consistency checks

All activity diaries were edited during January–March 2006. Most of them were of good or very good quality—in only 6 percent of cases it was necessary to make substantial changes to activity codes. A series of criteria were established to homogenize the use of certain codes to describe particular activities. Most notably, care was taken to differentiate between active and passive childcare or taking children to school as opposed to traveling associated to person care. These differences were checked for during editing. All changes made to activity codes initially assigned by fieldworkers were documented. Data compiled in electronic form included the descriptive text of all activities, something that might allow a closer analysis of respondents' reports and be used to improve future Activity Classification Systems.

Consistency checks were performed on simultaneous activities and location codes, traveling and location codes, random sampling and member selection, day of the week (since both the date of the interview and the day of the week it referred to were collected) and so on.

8.2.1.5.2 Assigning times to activities

Having detailed pair-wise information on simultaneous activities allowed for two different methods to assign minutes to activities. The '24-hour time' resulted from assigning average minutes to each of the activities performed in a given time slot (30 minutes where only one activity was reported, 15 minutes to each where two activities were reported and 10 minutes where three activities were reported), irrespective of their being performed either simultaneously or consecutively. The advantage of this time-assigning rule is that all respondent's activities add up to 24-hours a day. The obvious drawback is that the more simultaneous activities performed, the less time is allocated to each of them.

Having each and all possible combinations of simultaneous/consecutive activities (11 combinations of the number of activities recalled and yes/no answers to the simultaneity questions) allowed for assigning 'full-minute time' to all activities by accruing the full time length devoted to each activity, regardless of whether another activity was occurring at the same time. Thus, two simultaneous activities in the same time slot (for example, 'washing the clothes' at the same time as 'minding the children' or 'doing SNA work' at the same time as 'listening to the radio') each totaled 30 minutes.[17]

8.2.1.6 Quality Indicators

The nonresponse rate (outright rejection, noncontacted respondents and so on) of the survey was 10.7 percent among the households that responded to the Annual Household Survey and had at least one member between the ages of 15 and 74. This nonresponse rate was highly satisfactory, as it was significantly lower than nonresponse rates in the international context. As a result, checks for socioeconomic structure and labor force

status indicate that the population surveyed by the Buenos Aires Time-Use Survey did not significantly differ from that of the city, as surveyed by the Annual Household Survey. [18]

Random sampling of household members was equally satisfactory. Thirty-two percent of respondents to the time-use survey were not Annual Household Survey respondents. Though the probability of being chosen as a respondent in the time-use survey was higher in smaller the households, a crosstab between household type and selected members shows that the bigger and more complex the household, the higher was the chances of choosing nonheads/spouses. The final structure of the sample comprised 57 percent household heads, 25 percent were spouses, 12 percent were daughters/sons and 6 percent were other household members.

Over 80 percent of time-use interviews were conducted in 20 minutes or less. This did not conspire against diary quality; the average number of episodes registered in each diary was 21 (23 among women and 19 among men), indicating fairly complex recall reports.

The probing question on childcare worked well: 24 percent of all persons that reported childcare for either their household or other household's kids did so partly because of this probing question and 8 percent did so because they were prompted to do so—for example, they had not recalled having taken care of children altogether before being asked about it explicitly. However, the probing question aimed at identifying activities that were SNA work, even if the respondent would not consider them as such,[19] amounted to a marginal addition to the measurement of total SNA work (only 0.6 percent affirmative answer from those who engaged in SNA work, 90 percent of them women).

Considering simultaneous activities proved crucial for the measurement of activity times: if the 'full-minute time' assignation rule is used, the average day stretches to 28:15 hours. The highest simultaneity ratios were recorded in social and cultural activities (43 percent), mass media use (37 percent), unpaid community services (34 percent) and unpaid care for children and/or adults for own household (32 percent).

## 8.3 LESSONS LEARNED FROM THE METHODOLOGICAL APPROACH

### 8.3.1 Time-use Survey as a Module of an Ongoing Household Survey

The Buenos Aires Time-Use Survey shows that apart from cost considerations there are several advantages of the modular approach to time-use surveys over stand-alone surveys. First and foremost, the very existence of an ongoing household survey made it possible to conduct the time-use survey. Deciding on survey frameworks, selecting households to be surveyed, training fieldworkers and conducting fieldwork for the time-use module became a marginal effort—as opposed to a new survey that might exceed both the budgets and the technical/operational capabilities of the Directorate General of Statistic and Census of the city government or those of any statistical office.

In methodological terms, the most obvious advantage of the modular approach is that the core survey provides information that usually exceeds in scope and detail the data that would be collected by stand-alone time-use surveys, particularly on income and other socioeconomic stratification variables. In the case of the Buenos Aires time-use survey, the database comprises both time-use data *and* household and individual information for *all* members of the household to which the respondent belongs. The availability of this information improved both ex post analysis and data cleaning, as it allowed for editors to detect errors that could be eventually rectified.[20]

The other side of the coin is that a time-use survey collected as a module is a child of the household core survey it is attached to: it shares all its virtues *and* weaknesses in the form of operational definitions, global nonresponse rates, survey framework and fieldwork. In the case of this time-use survey, this meant missing the chance to collect information on hotels/pensions and shanty towns and having no chance of measuring seasonality in time-use.

Ad hoc modules are not generally favored by household surveys designers, as they fear they might spoil core survey information by raising nonresponse rates and/or compromising the continuity of long-term series. They are usually collected after the core survey has finished and its information has been secured. In the case of the Buenos Aires time-use survey, there were also built-in restrictions in its design, precluding those features that could raise drop-out/rejection rates (for example, long interview times, fixed week days to collect information on and so on). However, some methodological features had to be guaranteed *in spite* of the core survey design, particularly the way respondents were selected: there was no possibility of giving up on randomly selecting the module respondent if huge biases and overrepresentation of population not in the labor market was to be avoided. The Directory General's experts advised on allowing replacements after the second visit, considering that the most difficult part—getting households to open their doors and accept responding to the survey—was in those cases already achieved. Fortunately, there were unexpected synergies between the module and the survey, particularly by allowing for an extra revisit. The possibility for revisits was instrumental in collecting better information and allowing fieldworkers to check on data the time-use module the respondent had not provided, decreasing nonresponse rates on particular

questions (like those related to hours of paid work and income from paid work). Indeed, double-checking was two-sided and took place at many stages.

### 8.3.2 Use of a 24-hour Recall Activity Diary

The time-use survey proves that in some circumstances, provided the core survey is flexible enough to cater for very specific requirements (for example, respondent selection; sufficient week day variability), it is possible to collect a time-use module that follows the 24-hour recall activity diary form. Indeed, there is no need to equate the modular approach to time-use data collection with tasks list surveys, as it has been frequently the case in Latin America (Esquivel, 2008a). Conversely, time-use surveys based on activity diaries needn't be collected as stand-alone surveys. Even more, they needn't be self-administered to be activity diaries in the first place![21]

Activity diaries are less prone than task-list surveys to reflect designers' objectives and views, even if they are not 'value-free' data collection instruments. At the very least, they don't put words into the respondent's mouth, even if they shape answers by selecting time slots' length (which signal the respondent a minimum significant time for an activity to be so) and by filtering them through the Activity Classification System. In this respect, activity diaries allow for a more comprehensive measurement of the whole of the person's activities, since problems of 'missing activities', frequent in tasks lists survey, do not arise; rarely performed activities will simply come up less frequently and their total absence will never mean that the tasks list's designer forgot about it. Also, activity diaries provide information for the chronology of events, for example, not only the time devoted to a certain activity, but also when that activity takes place.

It cannot be sufficiently stressed that activity diaries are the only time-use collection instrument that satisfactorily caters to the collection and analysis of

simultaneous activities. The Buenos Aires survey proves that simultaneity is an essential feature of time-use, as simultaneity ratios and the length of the 'full-minute' average day show. Moreover, the satisfactory working of the probing question on childcare emphasizes the fact that unpaid care work is frequently performed in parallel with other activities and respondents tend to 'skip' their unpaid care work when socially more valued activities take place at the same time. Given this fact, instruments that cannot collect information on simultaneous activities have a built-in undue downward bias in their measurement.

## 8.4 SELECTED RESULTS FROM THE BUENOS AIRES TIME-USE SURVEY AND THEIR RELATION TO METHODOLOGICAL FEATURES

### 8.4.1 Time-use Estimates with Nonhierarchical Simultaneous Activities

Time-use estimates result from the time length assigned to activities, for example, depending on whether '24-hour time' (the time assigned to activities so that all respondent's activities add up to 24 hour) or 'full-minute time' (the total number of hours per person may exceed a 24-hour period) is used to calculate them. None of these two ways of calculating time can be said to be better than the other. However, since not all activities are performed simultaneously with others with the same frequency and duration, using '24-hour time' results in a downward bias to activities more frequently performed simultaneously (unpaid care work, socializing).[22] In the same breath, it overrepresents those activities less affected by simultaneity, such as personal care activities—particularly sleeping—that cannot be performed simultaneously. In this survey, nonsleeping time amounts to 15:48 hours, on average, and simultaneity adds 4:15 hours to an average day, implying over one-quarter of average wakeful time is devoted to two or three simultaneous activities!

**Table 8.1 Buenos Aires City, 2005. Activities on an Average Day using 24-hour Time, by Sex**

| *Activities on an Average Day (Monday through Sunday)* | *Total Population* | | | *Women* | | | *Men* | | |
|---|---|---|---|---|---|---|---|---|---|
| | Hours | % | CV Time | Hours | % | CV Time | Hours | % | CV Time |
| **Total** | **24:00** | ***100.0*** | **2.7** | **24:00** | ***100.0*** | **4.7** | **24:00** | ***100.0*** | **5.3** |
| 100: SNA Work | 03:52 | *16.1* | 6.8 | 02:45 | *11.5* | 9.0 | 05:14 | *21.9* | 9.6 |
| 400: Household Maintenance | 02:11 | *9.1* | 5.9 | 03:03 | *12.8* | 7.4 | 01:06 | *4.6* | 11.5 |
| 500: Unpaid Care for Children and/or Adults for Own Household | 00:41 | *2.9* | 11.0 | 00:58 | *4.1* | 13.7 | 00:22 | *1.5* | 18.6 |
| 600: Unpaid Community Services and Help to Other Households (relatives, friends, and neighbors) | 00:11 | *0.8* | 18.9 | 00:16 | *1.1* | 22.1 | 00:05 | *0.4* | 34.4 |
| 700: Education | 00:42 | *3.0* | 18.5 | 00:42 | *2.9* | 26.1 | 00:42 | *3.0* | 28.5 |
| 800: Social and Cultural Activities | 03:01 | *12.6* | 5.1 | 02:56 | *12.3* | 6.4 | 03:07 | *13.0* | 8.7 |
| 900: Mass Media Use Activities | 02:32 | *10.6* | 5.4 | 02:28 | *10.3* | 7.3 | 02:37 | *10.9* | 8.2 |
| 000: Personal Care Activities | 10:46 | *44.9* | 2.6 | 10:47 | *45.0* | 4.7 | 10:43 | *44.7* | 5.3 |

**Source:** Author's calculations based on the Buenos Aires Time-Use Survey and DGEyC (2007a).

**Table 8.2 Buenos Aires City, 2005. Activities on an Average Day using Full-Minute Time, by Sex**

| *Activities on an Average Day (Monday through Sunday)* | *Total Population* | | | *Women* | | | *Men* | | |
|---|---|---|---|---|---|---|---|---|---|
| | Hours | % | CV Time | Hours | % | CV Time | Hours | % | CV Time |
| **Total** | **28:15** | ***100.0*** | **2.9** | **28:28** | ***100*** | **4.8** | **28:00** | ***100*** | **5.2** |
| 100: SNA Work | 04:07 | *14.6* | 6.9 | 02:54 | *10.2* | 9.1 | 05:37 | *20.1* | 9.6 |
| 400: Household Maintenance | 02:31 | *9.0* | 5.7 | 03:34 | *12.5* | 7.0 | 01:14 | *4.4* | 11.2 |
| 500: Unpaid Care for Children and/or Adults for Own Household | 00:55 | *3.3* | 10.6 | 01:16 | *4.5* | 13.1 | 00:29 | *1.8* | 18.8 |
| 600: Unpaid Community Services and Help to Other Households (relatives, friends, and neighbors) | 00:15 | *0.9* | 18.9 | 00:21 | *1.2* | 21.6 | 00:08 | *0.5* | 32.9 |
| 700: Education | 00:45 | *2.7* | 19.1 | 00:47 | *2.8* | 27.1 | 00:44 | *2.7* | 28.8 |
| 800: Social and Cultural Activities | 04:20 | *15.3* | 5.2 | 04:16 | *15.0* | 6.2 | 04:23 | *15.7* | 8.4 |
| 900: Mass Media Use Activities | 03:29 | *12.3* | 6.0 | 03:26 | *12.1* | 8.0 | 03:33 | *12.7* | 7.8 |
| 000; Personal Care Activities | 11:50 | *41.9* | 2.6 | 11:51 | *41.6* | 4.6 | 11:48 | *42.2* | 5.2 |

**Source:** Author's calculations based on the Buenos Aires Time-Use Survey and DGEyC (2007a).

A comparison of population averages[23] further illustrates this point. As it is clear from Tables 8.1 and 8.2, the least simultaneously performed activities (SNA work, personal care activities and education) are the ones that lose the most in terms of the

proportion of average time devoted to them when full-minute time is computed. Major gains in terms of population average time are recorded in those activities that are most extended in the population (for example, that record very high participation rates, as it will be explained further on) and present high simultaneity ratios, like social and cultural activities (including socializing) and mass media use. Among productive activities, unpaid care for children and/or adults for own household present the highest simultaneity ratios, though this feature is less evident from the comparison of Tables 8.1 and 8.2 due to its relatively low population incidence.

Not considering simultaneous activities presents obvious gender biases, even at this very aggregate level, women devote 7:03 hours (24-hour time) or 8:06 hours (full-minute time) to productive activities, for example, SNA work and unpaid care work (involving household maintenance, unpaid care for children and/or adults for own household and unpaid community services[24]), while men devote 6:48 hours (24-hour time) or 7:30 hours (full-minute time). As women engage in simultaneous activities for a half an hour more than men, the gender gap between productive and nonproductive activities (all others) increases when simultaneous activities are fully taken into consideration.

Noticeably, gender-based differences emerge strongly *within* productive activities. Women and men distribute their work burdens in highly dissimilar ways. While the average time used for household maintenance, care for children and adults for own household and community services by women was three times that used by men both in 24-hour and full-minute times, the time men devote to SNA work is roughly twice that used by women (Figure 8.1).

**Figure 8.1 Buenos Aires City, 2005. Total Working Time using 24-hour Time, by Sex**


**Source:** DGEyC (2007a)

Unpaid care for children and/or adults for own household takes up 1:16 hours among women and 0:29 hours among men (full-minute time). Community services are the less frequently performed activities by the population (only 0:15 hours, on average, in full-minute time), which reflects the extremely low participation rate recorded in these activities (see below).

8.4.2 Time-use Estimates and Their Statistical Significance

Compared to the variations in the time spent on small individual activities, time spent on aggregate activities present relatively lower coefficients of variation (CV). CVs here are calculated both for time estimates and for the estimate of the number of persons engaging in a given activity. This is the 'bottom-up approach' in time-use data collection and analysis, in the sense that the degree of statistically significant activity disaggregation is determined ex post by activity frequency –as opposed to tasks lists, in which the degree of disaggregation is determined ex ante by the detail and length of the activity list. The highest CVs in Tables 8.1 and 8.2 correspond to unpaid community services, which are

the least frequent activities and the ones in which participants engage in during the shortest average time. As Table 8.3 shows, 11 percent of women, but only 5 percent of men, engage in unpaid community services and help to other households. As in all unpaid care working time activities, women participate more *and* the time female participants devote to these activities is higher than men's. This difference peaks in household maintenance (400), in which over 90 percent of women participate (as opposed to 66 percent men) and time devoted by women who participate is twice as much as the time devoted by men. Low CVs allow for the making of this comparison.[25]

**Table 8.3 Buenos Aires City, 2005. Participation Rates and Time by Participant on an Average Day, by Sex**

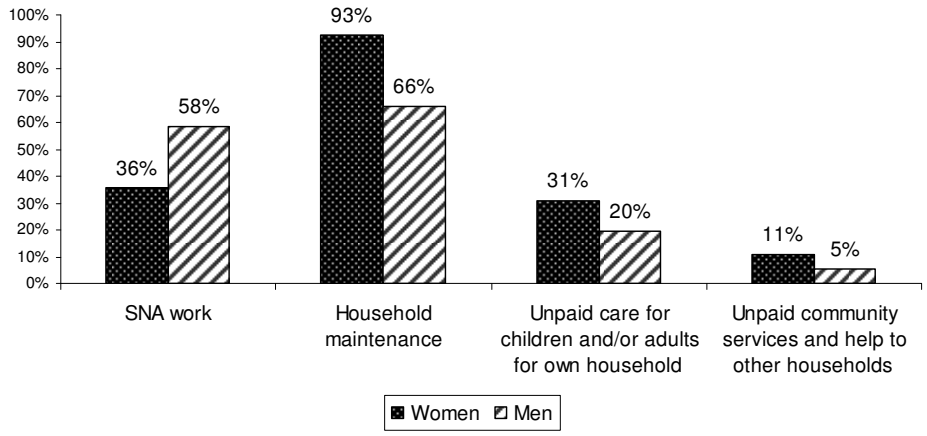
| *Activities on an Average Day (Monday through Sunday)* | *Total Population* | | | | *Women* | | | | *Men* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hours by Participant | | *Part rate* | CV Pers. | Hours by Participant | | *Part rate* | CV Pers. | Hours by Participant | | *Part. rate* | CV Pers |
| | 24-hour | Full-minute | | | 24-hour | Full-minute | | | 24-hour | Full-minute | | |
| **Total** | **24:00** | **28:15** | ***100*** | **2.7** | **24:00** | **28:29** | ***100*** | **4.7** | **24:00** | **28:00** | ***100*** | **5.3** |
| 100: SNA Work | 08:26 | 09:00 | *46* | 5.4 | 07:43 | 08:09 | *36* | 8.5 | 08:59 | 09:39 | *58* | 8.4 |
| 400: Household Maintenance | 02:42 | 03:08 | *81* | 3.8 | 03:18 | 03:51 | *93* | 5.5 | 01:40 | 01:53 | *66* | 6.7 |
| 500: Unpaid Care for Children and/or Adults for Own Household | 02:42 | 03:34 | *26* | 8.6 | 03:07 | 04:07 | *31* | 10.7 | 01:52 | 02:30 | *20* | 14.2 |
| 600: Unpaid Community Services and Help to Other Households (relatives, friends, and neighbors) | 02:16 | 03:02 | *8* | 14.8 | 02:29 | 03:13 | *11* | 16.0 | 01:43 | 02:33 | *5* | 29.8 |
| 700: Education | 05:06 | 05:31 | *14* | 12.9 | 05:01 | 05:34 | *14* | 16.9 | 05:11 | 05:27 | *14* | 22.7 |
| 800: Social and Cultural Activities | 03:20 | 04:47 | *90* | 2.9 | 03:13 | 04:41 | *91* | 5.2 | 03:30 | 04:55 | *89* | 5.9 |
| 900: Mass Media Use Activities | 02:51 | 03:54 | *89* | 3.1 | 02:45 | 03:49 | *90* | 5.1 | 02:58 | 04:02 | *88* | 5.8 |
| 000: Personal Care Activities | 10:46 | 11:50 | *100* | 2.7 | 10:47 | 11:51 | *100* | 4.7 | 10:43 | 11:48 | *100* | 5.3 |

**Source:** Author's calculations based on the Buenos Aires Time-Use Survey and DGEyC (2007b).

As a general rule, CVs are lower for participation rates than for the time used in the activity, though patterns are similar. Table 8.3 shows particularly low CVs for participation rates in social and cultural activities, mass media use activities and household maintenance. Social and cultural activities present very high participation rates (and simultaneity) and quite high times by participant because this category includes socializing. This is the result of spontaneous accounts of activities by respondents, as well as of the instruction given to fieldworkers to record 'socializing with others' if respondents stated that they were 'with others' (like family or friends).[26] Given this approach, the difference between participation rates for weekdays and weekend days' in these activities was not as strong as expected.[27] The same pattern is evident in mass media use activities, though in this case is the possibility of recalling up to three nonhierarchical activities that 'made room' for reports on listening to the radio and watching TV *while* doing other things (1 hour out of the 3:54 hours devoted, on average, by participants).

Only 35 percent of women between 15 and 74 years of age engage in SNA work, as opposed to 58 percent of men. Coefficients of variation for these participation rates are similar (8.5). Differences in average hours between men and women who engage in paid work are not that important (1:30 hours in full-minute time).[28] Indeed, those who are working for pay do have very long working days, irrespective of their sex.[29]

**Figure 8.2 Buenos Aires City, 2005. Participation Rates in Different Types of Work, by Sex**




**Source:** DGEyC (2007a)

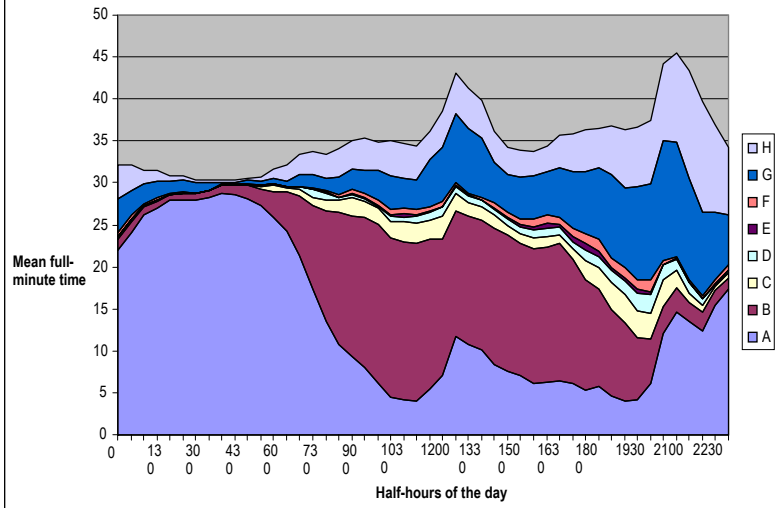
### 8.4.3 Daily Rhythms

The 24-hour recall activity diary allows for the analysis of daily rhythms in time-use, a rich time-use dimension that adds to activity duration analysis.

Figures 8.3, 8.4, 8.5 and 8.6 show average full-minute time devoted to different activity types[30] for employed men, employed women, not-employed men (either unemployed or inactive) and not-employed women (either unemployed or inactive) in Buenos Aires city. These figures are built by adding up average full-minute time devoted to each one-digit activity, at every half hour. In doing so, they graphically show both daily rhythms *and* simultaneity patterns for selected population groups.[31]

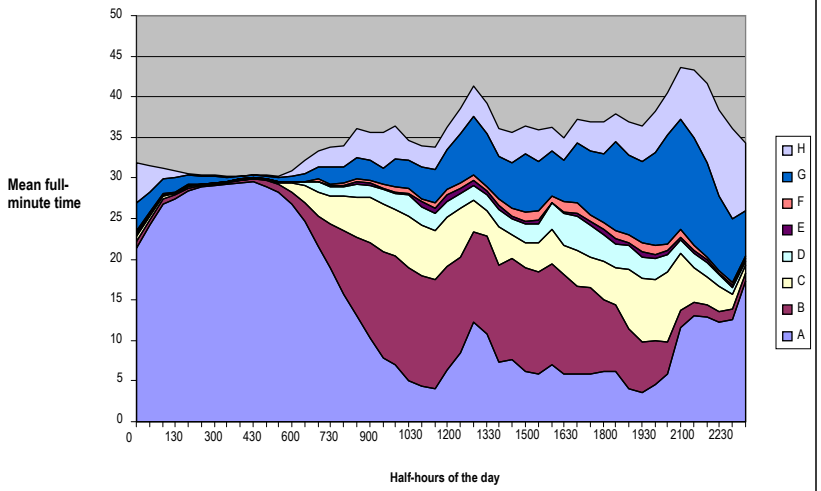
**Graph 3**

**Employed men. Full-minute time during the half hours of an average day.**



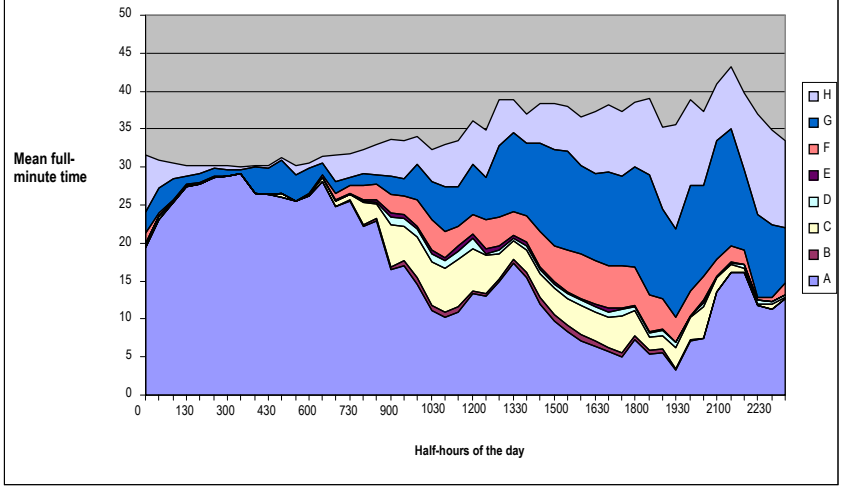

**Graph 4**

**Employed women. Full-minute time during the half hours of an average day.**



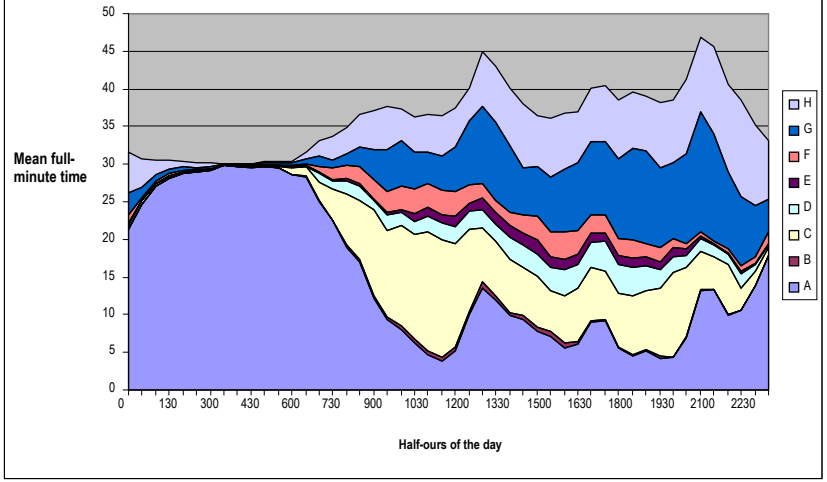

**Graph 5**

**Not-employed men. Full-minute time during the half hours of an average day.**




**Graph 6**

**Not-employed women. Full-minute time during the half hours of an average day.**



**Key**
A - Personal care activities
B - SNA work
C - Household maintenance
D - Unpaid care for children and/or adults for own household
E - Unpaid community services and help to other households (relatives, friends and neighbors)
F - Education
G - Social and cultural activities
H - Mass media use activities
**Note:** The structure of total Buenos Aires Time-Use Survey's population is as follows: 34 percent are employed men, 30 percent are employed women, 11 percent are not-employed men and 25 percent are not-employed women.
**Source:** Author's calculations based on the Buenos Aires Time-Use Survey.

At every half hour, times exceeding 30 minutes reflect simultaneously performed activities. The least simultaneous activities (personal care) explain the 'shorter' half hours at the beginning of the days. For all subgroups, peaks in simultaneity arise at lunch and dinner time, though they are less marked among not-employed men. [32] Also, women engage more regularly in simultaneous activities than men, so their total time frontier is higher than 35 minutes for almost all half hours from 9am onwards.

Personal care daily rhythms coincide, on average, among employed women and men, as does the productive frontier (paid plus unpaid care work) for most of the daylight hours—though women's productive time increases from 7pm onwards. The figures also show very clearly how this productive work is distributed along gender lines, even among those employed. During all daylight hours, an important fraction of employed women's time is devoted to household maintenance and care for children and/or adults for own household, while, on average, employed men devote to these activities less than half the time employed women do. Leisure time also has a slightly different composition, with employed women devoting relatively more time to social and cultural activities and employed men to mass media use at evening and night hours. Education is an important

activity, particularly during evenings, for employed men and for employed women, a pattern that shows that students (particularly tertiary and university) also consistently engage in SNA work.[33]

These patterns present a striking contrast to not-employed men and women.[34] Interestingly, not-employed men engage in simultaneous activities more often during afternoons and the evening time, while not-employed women do so more consistently along the day. Generally speaking, not-employed men are in education and not-employed women are either in education or housewives, which is evident by the amount of household maintenance time and child and adult care time they engage in. Again, it is more the time pattern of child and adult care than its amount that differs between employed and not-employed women: employed women care for children and adults increasingly over the course of the day with a peak at 11am, and then descending during the afternoon to reach another peak at 5pm, showing a pattern of care that has to be reconciled with paid work; on the contrary, not-employed women increase their child and adult care activity as hours pass—particularly during the afternoon—to reach a peak at 6pm. It should also be noticed that it is among the not-employed women that unpaid community services and help to other households become significant.

### 8.4.4 Extended Possibilities for the Analysis of Time-use When Rich Socioeconomic Data is Available

Collecting time-use data as a module of an ongoing household survey allows one to produce a comprehensive analysis of time-use data, benefiting from the existence of consistent demographic and socioeconomic information both for the individual *and* her/his household. This can partly compensate for the use of the individual as the unit of analysis, since individuals carry with them not only their own, but also all household

members', characteristics. Indeed, the Buenos Aires time-use survey does allow to link the time-use of respondents with their individual characteristics (sex, age in years, education in years, household member type—head, spouse, daughter/son or other, labor market status—inactive, unemployed or employed, earnings and so on) *and* household characteristics (household structure, employed members and dependency rates, household income, presence and age of children, children's school attendance and so on).

Among the many refinements that the Buenos Aires Time-Use Survey allows, the analysis of unpaid care work and its relation to the presence of children has proved to be particularly crucial in understanding care burdens and gender differences in total working time.[35]

**Table 8.4 Buenos Aires City, 2005. Participation Rates and Time by Participant on an Average Day devoted to Household Maintenance and Unpaid Care for Children and/or Adults for Own Household, by Sex and Presence of Children**

| | Household maintenance | | | | | |
|---|---|---|---|---|---|---|
| | Women | | | Men | | |
| | 24-hour time by participant | Full-minute time by participant | Participation rate (%) | 24-hour by participant | Full-minute time by participant | Participation rate (%) |
| **Total** | **03:18** | **03:51** | **93** | **01:40** | **01:53** | **66** |
| ***In households with…*** | | | | | | |
| *At least one child 5 or under* | 03:12 | 03:58 | 93 | 01:31 | 01:44 | 60 |
| *Children between 6 and 13* | 03:44 | 04:14 | 95 | 01:38 | 01:45 | 62 |
| *Adolescents (14-17)* | 03:08 | 03:39 | 92 | 02:11 | 02:26 | 58 |
| *Neither children nor adolescents* | 03:16 | 03:45 | 92 | 01:38 | 01:52 | 70 |

| | Unpaid care for children and/or adults for own household | | | | | |
|---|---|---|---|---|---|---|
| | Women | | | Men | | |
| | 24-hour time by participant | Full-minute time by participant | Participation rate (%) | 24-hour time by participant | Full-minute time by participant | Participation rate (%) |
| **Total** | **03:07** | **04:07** | **31** | **01:52** | **02:30** | **20** |
| ***In households with…*** | | | | | | |
| *At least one child 5 or under* | 03:44 | 05:06 | 91 | 02:01 | 02:33 | 72 |
| *Children between 6 and 13* | 02:41 | 03:25 | 62 | 01:35 | 02:14 | 41 |
| *Adolescents (14-17)* | 01:49 | 02:03 | 22 | 00:39 | 00:53 | 9 |
| *Neither children nor adolescents (*)* | 02:22 | 02:50 | 5 | 02:29 | 04:00 | 3 |

**Source:** Author's calculations, based on the Buenos Aires Time-Use Survey.
**Note:** There is no overlap in the categories 'households with at least one child five or under', 'households with children 6–13' and 'households with adolescents (14–17)'.
(*) Households with neither children nor adolescents in which women/men participated in unpaid care for children and/or adults for own household. These are divorced mothers/(mostly) fathers in whose households the children do not live most of the week and of which they are therefore technically not members. The Buenos Aires Time-Use Survey considered this unpaid childcare as 'for own household'.

Time devoted to child and adult care for own household's members, as well as participation rates, are highly correlated with the presence of children and decrease as the age of the child or children increases. Amounts peak at 5:06 hours among women and 2:33 among men (full-minute time) living in households with at least one child five-years of age or younger. It is in these households that the rate of participation in child and adult care is also the highest (91 percent for women and 72 percent for men). The difference between the time devoted by participating men and participating women (approximately 50 percent) persists as childcare needs decrease with children's increasing age.

On the other hand, neither the time devoted to household maintenance nor the participation rates in it are sensitive to the age of own household children. Among women who participate, the most time is dedicated to household maintenance in households with children between the ages 6 and 13 (4:14 hours, full-minute time), while the peak for participating men is in households with adolescents (2:26 hours, full-minute time). It is in these latter households, however, that men's participation rate is the lowest (58 percent).

**Table 8.5 Buenos Aires City, 2005. Participation Rates and Full-Minute Time by Participant on an Average Day Devoted to Unpaid Childcare for Own Household's Children, by Sex, Household Type and Presence of Children**

| | Total | | Women | | Men | |
|---|---|---|---|---|---|---|
| | Participation Rate % | Full-Minute Time by Participant | Participation Rate % | Full-Minute Time by Participant | Participation Rate % | Full-Minute Time by Participant |
| ***Persons providing unpaid childcare for own household's children*** | **23** | **03:41** | **27** | **04:17** | **18** | **02:34** |
| *In households with…* | | | | | | |
| *Complete nuclear-family households* | | | | | | |
| At least one child 5 or under | 90 | 04:24 | 92 | 05:50 | 86 | 02:30 |
| Children between 6 and 13 | 56 | 03:05 | 62 | 03:41 | 47 | 02:06 |
| Adolescents (14-17) | 12 | 01:15 | 19 | 01:24 | 4 | 00:28 |
| *Extended families* | | | | | | |
| At least one child 5 or under | 59 | 03:17 | 80 | 03:21 | 32 | 03:02 |
| Children between 6 and 13 | 41 | 02:22 | 46 | 02:13 | 34 | 02:39 |
| Adolescents (14-17) | 22 | 02:32 | 22 | 02:52 | 24 | 01:30 |

**Source:** Author's calculations, based on the Buenos Aires Time-Use Survey.
**Note:** There is no overlap in the categories "households with at least one child 5 or under," "households with children 6-13" and "households with adolescents (14-17)." Participation rates are calculated over total population living in households with children in each different household type. Complete nuclear households with at least one child 17 or under account for 30% of population while extended families account for 8% of total population (other omitted household types with children account for another 4% of total population).

Pushing the analysis further, participation in unpaid childcare and the amount of time devoted to it are highly correlated with children's ages, showing that adult care is relatively less important, particularly in households where there are children and no majors (complete nuclear families with children). Ninety-three percent of women and 86 percent of men (almost all mothers and fathers[36]) in nuclear households with at least one child five or under participate in caregiving. The number of hours devoted to caring for children 5 or under by participants is, in all cases, high and is above the average number

of unpaid childcare hours for the overall population—5:50 hours for the 92 percent of women who provide unpaid childcare in nuclear households and 2:30 hours for the 86 percent of men who do so.

Men's participation in care, when there are children five or under, drops sharply in extended households as a result of the greater number of potential caregivers and the greater likelihood that the survey interviewed a member who was not the children's father.

## 8.5 CONCLUDING REMARKS

The main lesson to be derived from the Buenos Aires time-use survey is that an unprejudiced, yet meticulous, approach to time-use collection in second- (or third- or more!) best scenarios can prove fruitful. Abandoning the idealized stand-alone time-use data collection approach was a first good step. Carefully thinking about trade-offs and documenting compromises made all along the way has also helped to frame data analysis and recognize its strengths and limits.

As mentioned, designing a time-use survey module in an ongoing household survey implied accepting all core survey characteristics as given. Among the many limits this imposed on the time-use survey is the lack of seasonality measuring, the impediments to probing labor force participation due to differences in reference periods and the nonfeasibility of surveying all household members due to extensive interview times. I believe, however, that only the latter is relevant, since it made the individual (not the household) the unit of analysis.[37] This feature, which constrains distributive analysis within households, is partly overcome by having extensive information on household characteristics. Other limitations of the survey result from conscious decisions taken at design stages, based on the belief that there is no 'one-size-fits-all' time-use survey. This

is particularly the case with respect to some difficult issues, like child labor. Only if children respond freely by themselves to the time-use questionnaires—with no interference from parents, either explicit or implicit—could a survey like this be used to accurately identify different forms of child labor. However, this could not be guaranteed, even in the context of the highly literate, relatively middle-class Buenos Aires population, and measuring child labor as one of the time-use survey objectives was dismissed from the outset.[38]

A future round of the Buenos Aires Time-Use Survey should include the populations of pensions and shanty towns. Probing questions could possibly be restricted to childcare, given the little incidence of the other two probing questions. Additional questions on daily childcare hours received by children five-years of age or younger and on hours of paid domestic help—keeping 'yesterday' as a reference time—should be added, at least to use them as controls in multivariate analysis. A larger sample size (for example, extending the module to more than two tranches and/or selecting more household members) could eventually improve the statistical significance of the measures of activity times.

The Buenos Aires time-use survey has also paved the path for future, nationwide time-use data collection as a module of ongoing household surveys, possibly the *EPH* (*Encuesta Permanente de Hogares*) collected by INDEC. The EPH shares many characteristics with the Buenos Aires Annual Household Survey and has the advantage of being collected in all major Argentine urban areas.

Advocacy, planning, funding and further collaboration among statistical offices and academia are all required for time-use data collection to become a reality at the

national level in the Argentinean context. Using Buenos Aires time-use data to promote gender-aware policy analysis will help to move in this direction.

## APPENDIX. Time Assignation Chart

The following chart shows times accrued to each activity depending on whether the activity was unique/appeared with one other activity or with two other activities in a given time slot; and whether it was simultaneous (occurred at the same time of another activity and got a code '1') or consecutive (did not occur at the same time of another activity and got a code '2') in a pair-wise comparison with each of the other activities reported in the same time slot.

## Table 8A.1

| Activities in each time slot | *At the same time as…?* *First Activity* | *Second Activity* | 24-hour Time | Full-Minute Time |
|---|---|---|---|---|
| Activity 1 | | | 30 | 30 |
| Activity 1 | | | 15 | 30 |
| Activity 2 | **1** | | 15 | 30 |
| Activity 1 | | | 10 | 30 |
| Activity 2 | **1** | | 10 | 30 |
| Activity 3 | **1** | **1** | 10 | 30 |
| Activity 1 | | | 10 | 30 |
| Activity 2 | **1** | | 10 | 15 |
| Activity 3 | **1** | **2** | 10 | 15 |
| Activity 1 | | | 10 | 15 |
| Activity 2 | **1** | | 10 | 30 |
| Activity 3 | **2** | **1** | 10 | 15 |
| Activity 1 | | | 10 | 20 |
| Activity 2 | **1** | | 10 | 20 |
| Activity 3 | **2** | **2** | 10 | 10 |
| Activity 1 | | | 15 | 15 |
| Activity 2 | **2** | | 15 | 15 |
| Activity 1 | | | 10 | 15 |
| Activity 2 | **2** | | 10 | 15 |
| Activity 3 | **1** | **1** | 10 | 30 |
| Activity 1 | | | 10 | 20 |
| Activity 2 | **2** | | 10 | 10 |
| Activity 3 | **1** | **2** | 10 | 20 |
| Activity 1 | | | 10 | 10 |
| Activity 2 | **2** | | 10 | 20 |
| Activity 3 | **2** | **1** | 10 | 20 |
| Activity 1 | | | 10 | 10 |
| Activity 2 | **2** | | 10 | 10 |
| Activity 3 | **2** | **2** | 10 | 10 |

NOTES

*I would like to thank Debbie Budlender, Marzia Fontana, Corina Rodríguez Enríquez and Ana Laura Fernández for engaging with me in reflecting on some of the issues covered by this paper and reading and commenting on previous versions. All remaining errors are my responsibility.

[1] There was a short module (only yes/no questions to ten tasks plus time allocated to perform them all) attached to the 2001 Living Conditions Survey. See Esquivel (2006) for further reference. Also, in 1998, a time-use survey was collected in the City of Buenos Aires as part of a National Women's Council research project, but only women older than 14 years of age were interviewed (see Rupnik and Colombo, 2006).

[2] At the time, the Buenos Aires Directorate-General of Statistics and Census held a group of outstanding professionals, both for their credentials and their experience in household survey collection, who were all instrumental in bringing about the Buenos Aires Time-Use Survey as an integral part of the 2005 Buenos Aires Annual Household Survey.

[3] Strictly speaking, the Annual Household Survey is representative of the Buenos Aires city population living in residential households.

[4] INDEC, Instituto Nacional de Estadísticas y Censos is the Argentine National Statistical Office.

[5] The household 'head' (she/he who is recognized as such by other household members) is the Annual Household Survey preferred respondent for the household and dwelling questionnaire. Each individual questionnaire contains household members' personal information and is expected to be provided by the respondent in person, except for children (below 15 years of age). However, if the household head was not present, any adult (15 years old or over) could eventually answer on household information; if

household members were not present and could not be contacted, their individual questionnaires could be answered by another adult household member (18 years old or over). Irrespective of the designated respondent, individual information for all household members should be collected before considering a household interview complete (DGEyC, 2005a:33).

[6] When a selected member could not be contacted, the replacement was randomly selected again (DGEyC, 2005b:3).

[7] During the pilot test, an alternative time schedule with moving starting and ending hours (based on the time of the interview) was tried. As it did not improve recall quality and was thought to increase fieldworkers' burden and eventually their errors, it was abandoned.

[8] See Budlender (2007) for a comparison.

[9] A similar question is also included in the 2000 Cuban Time-Use Survey (ONE, 2002).

[10] Clearly, the Buenos Aires Time-Use Survey did not have among its objectives to better measure the size of the labor force and took employment status as given. As the reference periods for the identification of labor force status and that of the TUS differed (last week for labor force information, 'yesterday' for the activity diary) there is no way of performing exact consistency checks between the two sources of information and none is considered superior. Indeed, it could be possible that someone was unemployed or inactive last week, but working for pay yesterday. These cases were hardly significant: only 3.3 percent of those who reported doing paid work were either inactive or unemployed according to their employment status.

[11] For a comparison between the Buenos Aires Activity Classification System and that of the 2000 South African Time-Use Survey, see Budlender (2007:13).

[12] Which would allow for up to six activities in a given half an hour if there is a 'main' and a 'secondary' activity in each of them.

[13] A frequent error at the outset was to read each of the lines of the 30-minute time slots as if they were 10-minute time slots (with no simultaneous activities). This was detected during training—when prospect fieldworkers had to fill in their own diaries—and in the first week of fieldwork, and corrected on the spot.

[14] The pilot test showed that prospects respondents asked about interview length before opting in/out of the survey. Answering to official surveys is protected by the Statistical Secret Law, and is neither compulsory nor paid for in Argentina.

[15] Strata corresponded to the 16 Centros de Gestión y Participación (Centers to deal with Administrative and Participatory Matters, decentralized municipal offices that, at the time, roughly corresponded to neighborhoods)

[16] Out of the 3 million people that lived in the City of Buenos Aires in 2005, 2.4 million people were between the ages of 15 and 74. Among those, 260.000 persons were not represented because they were room tenants in hotels/pensions or lived in shanty-towns.

[17] The presence of three activities in the same time slot complicates the analysis, since the activities may be entirely simultaneous, successive, two simultaneous during only a portion of the time slot while a third takes place successively and so on. All of the possible combinations were considered in assigning full-minute time to each activity. See Time Assignation Chart in the Appendix 1.

[18] These checks were performed comparing the Buenos Aires Time-Use Survey population to that of the Annual Household Survey population between the ages of 15 and 74.

[19] Typically, respondents differentiate what they consider 'proper' (paid) work from very informal/ irregular alternatives which nevertheless generate an income. However, the Buenos Aires Time-Use Survey shows this phenomenon to be marginal.

[20] As in the case of some living-in paid domestic workers whose activities were initially coded as household maintenance and unpaid care work.

[21] Equating activity diaries to self-administered diaries is a 'developed-country' bias, sometimes supported by developing countries' time-use experts (see, for example, Milosavljevic and Tacla, 2007). It implies that developing countries cannot collect information based on activity diaries because of their population characteristics (for example, rural and illiterate populations) and misses the chance of seriously considering whether it is feasible to follow the 24-hour recall activity diary.

[22] The difference in hours in an average day calculated using 24-hour time and full-minute time is the average simultaneity recorded in each activity category.

[23] Averages were computed as follows: for total population—total time divided total population; for women only—women's total time divided by female population; for men only—men's total time divided by male population.

[24] I am following the UNIFEM (2005:24) definition, which is the equivalent of non-SNA work. Unpaid care work is '"unpaid" meaning that the person doing the activity does not receive a wage for it; [is] "care" meaning that the activity serves people and their well-being; [and is] "work" meaning that the activity has a cost in terms of time and energy and arises out of social or contractual obligation, such as marriage or less formal societal relationships.'

[25] Technically, tests for statistically significant mean difference can be performed.

[26] In particular, identifying the difference between 'socializing with family' and 'childcare' posed a challenge to fieldworkers, according to children's ages and who else was present. Typically, a dinner at home with family and young children could involve both.

[27] 88 percent of total population engages in social and cultural activities during weekdays and 91 percent do so during weekends.

[28] These participation rates are lower than the average employed population between 15 and 74 years of age (55 percent among women, 76 percent among men), since in any average day, some employed persons may not engage in SNA work (weekends, holidays, leaves and so on).

[29] It should be noted that according to the Activity Classification System, traveling time is added to the activity originating the need for transportation. Therefore, SNA work includes time to get to and come back from paid work.

[30] For example, total time divided by total subpopulation under analysis.

[31] These graphs differ from standard daily rhythm graphs in the sense that each half-hour is not equal to any other (the graph is not respecting the 24-hour cap). An alternative to this presentation using full-minute time is normalizing to 100 percent of time in each half-hour, as it has been done in DGEyC (2007b).

[32] Note that employed men account for 11 percent of total population, 2 percentage points are unemployed men and 9 percentage points are inactive men. Not much of this time-use pattern should therefore been accrued to 'forced idleness'.

[33] Indeed, 46 percent of those who engaged in educational activities were employed.

[34] Out of the 25 percent of total population not-employed women account for, 3 percentage points are unemployed women and 22 percentage points are inactive women.

[35] Tobit regressions show that the presence of at least one child five-years of age or younger is the strongest household factor to influence time devoted to unpaid care work and child and/or adult care (both for own household and for own and other households), over household structure and income variables. In Buenos Aires, 17.1 percent of the population between 15 and 74 years of age lives in households with at least one child five-years of age or younger. Among income related variables, only poverty (and not per capita income quintile) was significant to explain time devoted to unpaid care work and childcare. The (absolute) poverty rate for Buenos Aires in 2005 was 5.9 percent (Esquivel, 2008b).

[36] It may happen that the respondent to the module is a sibling over 14. However, the crosstab between the type of member and type of household shows that these cases are marginal in the age bracket consisting of households with children five and under (only 4 percent of the total cases in the sample).

[37] It is worth noting that most time-use surveys share this constraint with the Buenos Aires Time-Use Survey.

[38] By that time, a specific survey on child labor, funded by the ILO Buenos Aires Office and the Ministry of Labor had just been collected (OIT, 2006).

REFERENCES

Budlender, D. (2007) 'A Critical Review of Selected Time Use Surveys', Programme Paper No. 2 (Geneva: United Nations Research Institute for Social Development—UNRISD).

Budlender, D., N. Chobokoane and Y. Mpetsheni. (2001) *A Survey of Time Use: How South African Women and Men Spend Their Time* (Pretoria: Statistics South Africa).

Consejo Nacional de la Mujer (2006) *Decir mujer es decir trabajo. Metodologías para la medición del uso del tiempo con perspectiva de género* (Buenos Aires: Consejo Nacional de la Mujer).

Dirección General de Estadística y Censos, G.C.B.A. (DGEyC) (2005a) *Encuesta Anual de Hogares 2005. Manual del Encuestador* (Buenos Aires: DGEyC).

Dirección General de Estadística y Censos, G.C.B.A. (DGEyC) (2005b) *Encuesta Anual de Hogares 2005. Encuesta de Uso del Tiempo. Manual del Encuestador*, http://estatico.buenosaires.gov.ar/areas/hacienda/sis_estadistico/2005/manual_enc.pdf

Dirección General de Estadística y Censos, G.C.B.A. (DGEyC) (2005c) *Encuesta Anual de Hogares 2005. Encuesta de Uso del Tiempo. Diario de Actividades*, http://estatico.buenosaires.gov.ar/areas/hacienda/sis_estadistico/2005/diario_actividades.pdf

Dirección General de Estadística y Censos, G.C.B.A. (DGEyC) (2006) *Encuesta Anual de Hogares de la Ciudad de Buenos Aires 2005. Síntesis Metodológic* (Buenos Aires: DGEyC).

Dirección General de Estadística y Censos, G.C.B.A. (DGEyC) (2007a) 'Encuesta Anual de Hogares 2005, Encuesta de Uso del Tiempo, El tiempo de trabajo total. Mujeres y varones en la Ciudad de Buenos Aires', Informe de Resultados No. 328, September, http://www.buenosaires.gov.ar/areas/hacienda/sis_estadistico/informe_328_encuesta_de_uso_del_tiempo.pdf

Dirección General de Estadística y Censos, G.C.B.A. (DGEyC) (2007b) 'Encuesta Anual de Hogares 2005, Encuesta de Uso del Tiempo, La utilización del tiempo de las mujeres y los varones', Informe de Resultados No. 329, September, http://www.buenosaires.gov.ar/areas/hacienda/sis_estadistico/informe_329_encuesta_de_uso_del_tiempo.pdf

Esquivel, V. (2006) 'What else do we have to cope with? Gender, paid and unpaid work during Argentina's last crisis", Working Paper Series 06-6 (CITY?: The International Working Group on Gender, Macroeconomics, and International Economics).

Esquivel, V. (2008a) 'Time Use Surveys in Latin America' in *Explorations: Time Use Surveys in the South,* Feminist Economics, April–June.

Esquivel, V. (2008b) 'An Analysis of Time-Use Data on Work/Care Arrangements and Macro Data on the Care Diamond', Research Report 2 Argentina, The Political and Social Economy of Care Project, UNRISD.

Milosavljevic, V. and O. Tacla. (2007) 'Incorporando un módulo de uso del tiempo a las encuestas de hogares: restricciones y potencialidades', Serie Mujer y Desarrollo N° 83, Unidad Mujer y Desarrollo (Santiago: ECLAC).

Oficina Internacional del Trabajo (OIT) (2006) *Infancia y adolescencia: trabajo y otras actividades económicas. Primera encuesta. Análisis de resultados en cuatro subregiones de la Argentina* (Buenos Aires: OIT).

Oficina Nacional de Estadísticas, Cuba (ONE) (2002) *Encuesta sobre el Uso del Tiempo*, La Habana, http://www.one.cu/publicaciones/enfoquegenero/tiempo/UsoTiempo.rar

Rupnik, A. and P. Colombo (2006) 'Las Mujeres cuentan, contemos el trabajo de las Mujeres. Investigación sobre distribución del uso del tiempo entre las mujeres de la Ciudad de Buenos Aires', in Consejo Nacional de la Mujer (2006), pp. 109-156.

United Nations Development Fund for Women (UNIFEM) (2005) *Progress of the World's Women 2005, 'Women, Work and Poverty',* prepared by M. Chen, J. Vanek, F. Lund and J. Heintz, with R. Jhabvala and C. Bonner (New York: UNIFEM).

United Nations Statistics Division (UNISTAT) (2005) *Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work* (New York; UNISTAT).