

## **Gender issues in the measurement of paid and unpaid work**

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### **Country Report: Rep. of KOREA 1999 Time Use Survey**

## **Country Report on Time Use Survey: Republic of Korea**

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### **ABSTRACT**

This paper presents a major procedure related methodological issue and a preliminary summary of the some outcomes from the 1999 Time use survey in the Republic of Korea. The Time use Survey was carried out in September 1999 by the National Statistical Office (NSO). The work in preparing for a Korean time use survey has been taken forward since 1997 and the pilot survey has been conducted in 1998. By testing various methods and questionnaires through the pilot surveys and the dress rehearsal survey, the "experimental two-day after-coded time diary" has been applied for the survey. This report describes the design and implementation of the survey. It also presents some preliminary findings.

## **1. INTRODUCTION**

### **1.1 Introduction and Backgrounds**

For the last decades time use survey has grown into a research instrument for observing and evaluating a wide range of social phenomena in many countries. However, Korea has no history of carrying out large scaled official time use survey, although several small-scale time use surveys have been conducted by the academic community and by the Korea Broadcast system (KBS). Those kinds of "traditional style of time use survey" are focusing on leisure and free-time patterns. Thus, the traditional time use survey has a limitation and restriction for analyzing unpaid work and production within housework.

The principal objective of the time use survey is to estimate what people do, how they spend their time, what does everyday life look like, how much time is spent on gainful employment, unpaid work, leisure activities, personal activities, how do population groups and countries differ in these respects. To obtain this kind of information, a diary technique is used. In the diary, sampled persons (or members of sampled households) keep records over their activities in the diaries, generally during one or a few days.

Recently interest in production by households is rapidly increasing, because the SNA 93 recommends that the account include unpaid production of services in the household. Many countries are recognized that

undeniable goods and services produced within households are contributions to national economic property. However, the measurement of the value of these kinds of productions is far from simple. By definition unpaid production can't be observed directly in terms of money, thus alternated methods will have to be chosen. The recent initiatives by EUROSTAT and the Fourth UN World Conference on Women in Beijing, where the Global Platform for Action was adopted including a commitment to measuring unremunerated work, have initiated a new momentum to establishing time use survey in Korea.

In 1997 the National Statistical Office (NSO) started preparations for a nation-wide time use survey. The main objective of the NSO time use survey is a description of time spent by persons and households on productive activities and other activities such as personal care, travel, and leisure-related activities. For the aim of measuring time use on productive activities a number of observational methods are conceivable. Even direct observation probably would be the best accurate method, however, it would be influence the object of observation and moreover the costs of execution are insurmountable.

In a time diary survey all activities during a given period will be observed. Mostly by means of a diary, the entire time use will be registered. A main advantage of this method is that the respondents themselves can give a description of the activity or can decide for themselves that description is most applicable to the activity to be registered. The accuracy of data collected by a time use survey is also greater than by retrospective questioning. The time use survey can be conducted by several methods as follows; a) self-reporting by respondent with mail-back diaries; b) self-reporting with diary pickup and checking of responses by interviews; c) face-to-face or telephone interviews; d) and observation method.

As we know, Korea has no experience and history of carrying out large official time use surveys before 1999 survey.. Time use data have been recognized by Government Departments and NSO in the past as interesting but not essential; time use surveys seen as instruments that would add some value but which represent poor value for money. Now, the awareness of the potential of time use surveys is increasing, because time use survey can provide a unique tool with which to measure unpaid work and to supplement labor statistics. With respect to objectives and uses of Time Use Survey, NSO is starting to develop the time use study and to design the time use survey.

## **1.2 Organization of the Paper**

The paper is based on the pilot test and first Time Use Survey undertaken in 1999 by the National Statistical Office in Korea. Section 2 describes the design and implementation of the survey. This provides the context within which the methodological findings of the former pilot test and main Time Use Survey can be assessed. Those findings are documented in the third section of the paper briefly.

## **2. THE DESIGN AND CONDUCT OF THE SURVEY**

## **2.1 Sample design**

### **2.1.1 Sample Selection**

The data and materials from approximately 22,029 ordinary enumeration districts (ED's), which are 10% of the 1995 population and Housing Census are used for the sample selection. According to the classification of major administration regions, the country is divided into 16 strata, i.e., 7 metropolitan areas and 9 provinces. They are further divided into small area like '*dongs*', '*ups*', '*myons*'. Within each stratum, the primary sampling units (PSUs) are systematically selected with a probability proportional to its measure of size. A total of 850 ED's are selected. Each selected ED consists of a corresponding number of segments with 8 households on average.

Within each of the 850 ED's as a primary sampling unit, three contiguous segments are randomly selected as a secondary sampling units (SSUs). The sampling frame was the household address file for Multi-Purpose sample (HAF-MP). This is the frame that is used for most government household survey in Korea. It is believed to have coverage of around 99% of the residential household. Then, the 20 households were selected systematically from the SSU using a random start point and a fixed interval. It is the ultimate sampling units (USUs) of the survey.

The total sample size is 17,000 household from 850 ED's. And, the individuals who are 10 years old and over in selected households are 46,109. The distribution of sample by sex is male 48.5% and female 51.5%.

### **2.1.2 Sampling of person-days within household**

The sample for the Time Use Survey can be defined at three levels: a sample of households, a sample of individuals and a sample of diary days: the three levels forming a hierarchy. For international comparison, Time Use Survey in Korea accepted Eurostat guidelines for sampling of person-days within household. Within each included household, all household members aged 10 years or older were included in the sample of individuals. The household members were identified through the household address file for Multi-Purpose sample (HAF-MP) which should be checked every month by regular interviewer in NSO and Household's Questionnaire of Time Use Survey.

The diary days for which each included individual should have completed a diary were pre-assigned to addresses by repeating the pattern shown in Table 1 systematically down the list of selected addresses. All members of selected a household were to complete diaries for the same two days which is continued day such as Friday-Saturday or Monday-Tuesday. The allocation of specific diary dates proceeded in one of two ways. The 20 households within a selected ED were divided into 5 separate group. Each group contained 4 household evenly. The same diary dates are pre-allocated by group systematically.

Table 1. Patterns of Diary Days-Dates by Group

<b>Group</b>	<b># of household</b>	<b>pre-allocated dates</b>
<b>A</b>	4 households	Friday 3 Sept - Sat. 4 Sept
<b>B</b>	4 households	Sunday 5 - Monday 6
<b>C</b>	4 households	Tuesday 7 - Wednesday 8
<b>D</b>	4 households	Thursday 9 - Friday 10
<b>E</b>	4 households	Saturday 11 - Sunday 12

Firstly, according to order of household address file for Multi-Purpose sample (HAF-MP), the households were grouped into 5 groups which was assigned different diary days pre-assigned by sampling of household-days. Then, 850 part-time interviewers hired for the survey. The 20 households assigned to each interviewer for his/her own due during period of survey. The interviewers followed guideline for diary days basically. Secondly, interviewers were only allowed to change the dates in cases where the NSO 'exchange diary dates criteria' were met and after getting a allowance by supervisor.

The time use pattern might be affected by days, each group contained same number of household evenly. Therefore, even diary dates can be exchange with other household, each group can not exceed 4 households. And weekend was included twice, while from Monday to Friday included only one time.

### **2.1.3 Incentives**

Through pilot surveys and dress rehearsal, effect of incentives on respondent has been tested. Eliciting response and increasing data quality by giving a present to the respondents is a methodological topic hardly specific for time use survey. According to the experience of other countries, a present is given in only a small part of the surveys. For example, the UK used an incentive of *10 pounds* per person per household if all eligible members of the members of the household completed their diaries and questionnaires in 1996. We did not give any incentive in the first pilot survey, on the other hands, for the second and third pilot survey, a present which valued 3,500 won (approximately \$3) per person was given as an incentive.

According to results of the pilot survey, effect on response rate appears substantial. Giving a present evidently raises the costs of the survey, but also raises the response rate. As a time use survey requires some effort of the respondent, in particular when having to keep a diary during a number of days, it has been decided to examine whether the handing over of a present is effective or not.

However, incentive for individual or for household itself is not efficient enough in case of single person household or large number of family. Each respondent received a pre-paid telephone card which valued 2,000 won (approximately \$2) if he/she completed and returned all the required documents (questionnaire and diaries). And, any person who representative their household and fill out the 'household questionnaire' received a another present which valued 10,000 won (approximately \$10). The use of such an incentive has a positive effect on response.

## **2.2 Design of questionnaires and diaries**

In Time Use Survey in Korea, three separate questionnaire documents were designed: the household questionnaire, the individual questionnaire and the time-diary. For the pilot survey, week schedule also had been applied. However, the information about week-schedule can use by matching 'the economically active population survey', it excluded in the Time Use Survey.

For developing the final standard questionnaire, various types of questionnaire had been tested in the pilot survey and dress rehearsal. In this section, the experiences from the pilot study were reviewed as well as final design of the survey.

### **2.2.1 The method of registration: yesterday-interview or time-diary**

The time-diary was conducted for the main Time Use Survey. The trained interviewer pre-visited to each household before diary date in one day advanced. They explained the survey and interviewed the household questionnaire and individual questionnaire. After then, explained how to and when fill out the time-diary and distribute the time-diary for every household member who are aged 10 years old or over.

Next day, the interviewer visited the household secondly to help or check whether they fill out their time-diary correctly or not. In this time, if someone didn't fill out her/his activities or not comprehensively, then interviewer attempted to conduct yesterday-interview to add more information..

The most fundamental choice with regard to the design is between an interview in which the respondents are requested to describe to the interviewer their time use in a previous period and a method by which the respondents themselves register their time use in some way.

Basically our pilot survey applied diary method in which the respondents themselves keep a diary during one or more days, in practice yesterday-interview method and diary method were not mutually exclusive. In some cases data from the diary is supplemented by information obtained in a face-to-face interview, especially elderly. Most of old person preferred the yesterday-interview and low level of educated person also prefer the face-to-face interview. Therefore, we distributed the diary to respondents one day before which designated date for fill in their spent time, then we did yesterday-interview when we pickup the questionnaire and diary.

An advantage of the time diary method is that respondents make fewer mistakes in recollection as they can register their activities any moment and do not have to think very far. In a yesterday-interview a large measure of standardization of registration of activities can be obtained by using a trained interview. Insight in both possible ways of observing informally productive activities was so important that this aspect has been examined in the pilot survey.

### **2.2.2 Pre-coded and after-coded diary: open and closed registration of activities**

The after-coded diary with 10 minutes interval was conducted for the main Time Use Survey. According to self-writing diary in ten minutes interval in their own words, we coded activities into approximately 125 categories of activities.

The choice between pre-coded and after-coded diary is comparable to the choice between closed and open questions. In the open variant no restrictions was imposed on the description of activities by the respondents who are asked to describe in their own words as accurately as possible which activities have been performed. In the closed variant the respondents choose a description from a list of activities that was already pre-coded.

As an important advantage of the pre-coded diary (closed design) the possibility should be mentioned of controlling how specifically the description of activities has to be as the research can describe in more detail specific parts of time use such as informally productive activities. Of course this might lead to some bias of observation or of the recollection process. When we want to have additional supplementary information about some activities a list of activities can include indicators for routing whereas after-coded diary will require a general instruction. Particularly if we want to include all members of the household in the survey a general instruction to each of them may meet with practical difficulties.

Many researchers studied the pros and cons of pre-coded and after-coded diary and in general they finally preferred an after open design (after coded diary). Empirical comparisons with regard to this aspect are scarce. Therefore, we should compare the consequences of a pre-coded and after-coded design for data collection through the pilot survey.

It is one of the most important purposes of the pilot survey in Korea. The attitudes of respondents are very influenced by social conditions and cultural aspect. We assumed that most of Korean is relatively conservative. Thus, they are not likely to speak their own life to others. Usually a pre-coded design is attractive if the number of activities is small. Likewise when additional information about specific activities is required this method clearly seems preferable.

In the first pilot survey a pre-coded diary has been applied. We designed the diary as a circular shape with 15 minutes' intervals. The list and number of classification of activities are found in the activity column to the left and right side in the diary. If the respondent knows exactly which activity has to be registered and which code is most applicable, the pre-coded diary might be very effective method for time use survey.

However, the results of first pilot survey showed a variation between age groups and educational level. For elderly and adults who are very busy, this is tantamount to burdening the respondents with a large part of the data processing and they will probably make mistakes as they are less acquainted with all possible choices than experienced codifies.

Another problem can be appeared in the list of activities that we designed and designated to respondents. We are not quite sure whether the list provides sufficiently detailed information or not. Sometimes the list of pre-coded diary couldn't cover all kinds of possible activities.

In the second pilot survey, we applied the after-coded diary with 10 minutes' intervals for recording their activities. After collection of diary, we coded the activities again by using list of classification of activities. In general coding of diaries is a very laborious process. Apart from problems with readability respondents appears to be inclined to give vague or too general descriptions. The results of second pilot survey showed that there was not enough concrete information in the diaries from rural areas and from elderly. We could not make conclusion which method is adequate and applicable for the main survey in Korea from the both pilot surveys.

Therefore, we applied a pre-coded and after-coded diary at the same time in the third pilot survey. We hired temporary interviews for third pilot survey. They used a pre-coded diary for half of the sample and after-coded diary for another half. Through this procedure, we can have an idea that temporary interviewers preferred after-coded diary, because it makes them easy to checkup the contents of diary with respondents. On the other hands, most of the respondents also preferred the after-coded diary. The respondents said it was so hard to find the adequate number from the list of activities' classification.

### **2.2.3 Number of diary dates**

In general the period of observation for a diary lies between one day and one week. It may be expected that the effort required of the respondent will increase as the number of days increases. It also might be that data quality will decrease as time passes. An obvious and important merit of observing a larger number of days is that is less expensive than observing one day only. Observing seven days is preferable as well because each day of the week will be observed and no separate weighting procedure will have to be applied. In Korea, some researchers also suggested this variant for our pilot survey.

Despite the advantage of a longer period with regard to cost, reliability and coverage in a diary design a rather small number of days generally are preferred as an observation period of three days only appears to cause a decrease of response. When less than an entire week is observed attention will have to be paid to the selection of days in order to ensure the availability of information on each day of the week. Considering the importance of the duration of observation the effect of a period of two days as compared with five days will be examined in the pilot survey.

In the first and second pilot survey, diary for one day was filled in by member of sampled households, supposed they are 12 years or older. The third pilot survey tested two-days diary and five-days diary. The results of the pilot survey suggested that two-days diary be adequate in Korea. Most of the people felt boring and tiresome with five-days diary. The response rate of the group who used five-day diary was relatively lower than other group. Therefore, the two-day diary was applied for the main survey.

### **2.2.4 Period of observation on survey: Seasonal effect**

Independently of the choice of a period of observation on respondent level a period of observation on survey level might be considered. On the one hand all interview can be held on one and the same day, on the other hand interviews can be spread over for instance one year. An important merit of the latter

alternative is that seasonal effects on time use can be measured. Even the latter method has an advantage that the general pattern of time use is rather stable when the data is collected through one year, there are many limitations and difficulties to adopt this method in Korea.

Of course, in the pilot survey no attention can be paid to this topic. But the Korea has four different typical seasons during a year, thus we wanted to check the seasonal effect on time use by the pilot survey. Thus, the pilot surveys conducted in different season, such as in the spring, summer, and autumn in this year. In other countries, in Norway, it has been concluded that observation of time use in spring or in the fall provides an acceptable average for the entire year. Based on the results of our pilot survey, informally productive activities have been effected by season.

Considering the importance of observing seasonal effects when measuring informal production and considering that data on informally productive activities has to be connected with data on other forms of productions the main survey will be spread over the entire year. In considering the situation of Korea, it will be very difficult. Therefore, selection of survey period and duration of survey are very important. The main survey should be spread more over one week. The survey should be conducted in the spring or in the fall, either way.

### **2.2.5 Unit of observation**

In a time use survey, individual of sampled household is observed. Considering the objective of the study, it might be very important to measure time use of all members of a household, when interrelationships of behavior, such as division of housework between members of the household. The problem can be appeared in this manner. Namely, it seems likely that the probability of response by all members of the household will be much smaller than the probability of response of one person only. The consequences of interviewing entire households when observing time use as compared with only one (for example KBS study) people almost nowhere come up for discussion in the literature. This design aspect is closely related to another: it will hardly be possible to obtain response from all members of the household when interviewing face-to-face whereas this might work when respondents have to complete the forms themselves.

In the first and second pilot survey, all members (12 years and above) of a sampled household are requested to fill in time diaries for the same days. In the third, it has been requested to interview each member of the sampled household who is 10 years of age and older. We attempt to figure out the response rate and quality of response of the youngest and the oldest age group. The sample size of pilot survey was not big enough to estimate those aspects. However, for international comparison of time use data, we would better include 10 years of age and older for main survey.

## **2.3 Coding**

### **2.3.1 Primary activity codes**

The list of Classification of Activities in Korea (CAK) has been developed with 9 main groups and 125 three digit category codes within the diary coding system (See attachment for a list of the classification). There shouldn't be a missing line in a primary activity column in the diary. Each primary activity required 4 digit coded for identifying spatial location, indoors or outdoors. Another supporting codes are related to the mode of transport. Therefore, whenever the primary activities presented movement, then in the column of 4<sup>th</sup> digit coded the mode of transport. According to this rule, every primary activity should be coded as a 4 digit.

In general the allocation of codes to primary or secondary activities might be reflect the respondent's perception of the activity being performed. Sometimes, however, editing of primary activity should be required. For example, if a respondent enters 'napping' as primary and 'travel by the train' as secondary, it should be edited. Because, we assumed that all kinds of travel should be a primary activity except just drive by car for free time.

On the other hands, if at one time a respondent enters 'watching television' as primary and 'caring baby' as secondary and another time the reverse, it might be accepted that order in terms of respondent's perception.

### **2.3.2 Secondary activity codes**

The list of primary activity codes reapplied for the secondary activity. The survey in 1999 in Korea designed coding system with primary and only one secondary activity. In general, however, there are many versions of statements of multiple activities at the same time. If various activities that take place at the same time, i.e, 'watching television, 'drinking a cup of coffee', and 'communicating with partner' in the same time slot (within 10 minutes), it need editing too.

In Korea, there is regular interviewer in NSO and they are conducting several surveys in the same sample during 5 years. Thus, interviewers try to make clear by asking what was her/his priority within 3days after collect questionnaire. Based on the answer, the written activities can be coded as a primary or secondary activity.

For resting activity, it shouldn't coded as a secondary activity at all. Because, resting is defined as a 'nothing doing' in the classification of activity. Whenever resting is written in the diary, it classified as a primary activity if there isn't any activity in the same time slot. If there is any activity in a same time slot and coded secondary activity, it must be edited. Those activity should be coded as primary activity, and even the respondent may wrote down 'resting' in the secondary activity column, do not record it al. Just delete them.

## **3. Classification of activities**

### **3.1 Classification of activities**

The main proposals for a trial international classification for time-use activities are led by EUROSTAT and by UNSD. However, the pattern of human activities is very affected by cultural aspect. It is very hard to follow any classification directly. Therefore, we developed our own classification of activities by concerning our cultural condition and by adapting Korean people and government needs with guideline from EUROSTAT and UNSD's proposal.

Namely our classification considered the basic principles for specifying the classification which was recommended by the UN; a) Provide a structure that is consistent with the conceptual framework of the System of National Accounts; b) Ensure comparability with other existing time-use classifications. We agreed to UN suggestion that " . . . although countries were expected to adapt the proposed international classification to their national social and economic realities, every effort should be made to maintain international comparability at the 2-digit level of classification.... "

### **3.2 Classification of activities: 1999 Time Use Survey in Korea**

The activity classification of 1999 Time Use Survey has been developed by NSO. The Time Use Survey team has reviewed Eurostat's and UNSD's framework of classification and referred other countries' such as Australia, Canada, etc. The classification of 1999 TUS categories activities according to a three-tier classification system with 9 main categories. These main categories are grouped according to Dagfinn Aas' concepts of types of time. The different types of time they relate to are shown in the following table.

**Table 2. Groups of activity category by type of time**

Type of time	Activity category
Necessary time	1.Personal care activities
Contracted time	2.Employment related activities
	3.Educational activities
Committed time	4.Domestic activities 5.Family care activities 6.Voluntary work and community participation
Free time	7.Social life, recreation and leisure

As we know, classification of activities is crucial in the analysis of time use data. According to their purposes and socio-cultural background, every country developed classification system. In developed countries the classification focuses on understanding a daily life such as free time activities and leisure life, the patterns of social role by sex in domestic work and taking care of children.

In this context, the Eurostat recommended 4 separate categories for free time activities. On the other hands, in developing countries, many issues related to evaluate unpaid work or informal work hour and pattern are raising. In these contexts, the UNSD tried to develop a new scheme of classification of time use activities that meets the needs of both developed and developing countries. In 1999 Time Use Survey in Korea, we considered both trends to develop a new classification for our own purpose and social circumstances.

The main purpose of 1999 Time Use Survey is to explain a daily life style of Korean. However, it could be possible to provide internationally comparable time use data among different countries. Based on this purpose, we developed the classification of activities as follows.

**Table 3. Comparison with UN and EUROSTAT's classification**

KOREA	EUROSTAT	UNSD
1.Personal care activities	0.Personal care	0.Personal care and self-maintenance
2.Employment related activities 21.Employed & self-employed work 22.Unpaid work in family business 23.Unpaid work on family farm 24.Unpaid work in family garden (not for sale)	1.Employment	1.Employment for establishment 2.Primary production (not for establishments) 3.Services for income and other production of goods (not for establishments)
3.Educational activities	2.Study	7.Learning
4.Domestic activities	3.Household and family care	4.Household maintenance,

KOREA	EUROSTAT	UNSD
		management and shopping for own household
5.Family care activities		5.Care for children, the sick, elderly and disabled for own household
6.Voluntary work and community participation	4.Civic and religious activities	6.Community services and help to other household
7.Social life, recreation and leisure 71.Social activities 72.Mass media 73.Learning of non-students 74.Religious activities 75.Entertainment 76.Sport and outdoor activity 77.Hobbies and games	5.Social life and entertainment 6.Sports participation 7.Hobbies and Games 8.Mass Media	8.Social and cultural activities 9.Mass media use
8.Travel	9.Travel & unspecified time use	
9.Others		

Even the UNSD classification of activities is very useful to estimate the amount of total work hour whether within establishments or not for establishment, there were some difficulties to apply for 1999 TUS in its entirety. We followed them for catching work hour by main job and second job, separately. However, some of the categories such as a production of goods not for establishments is still ambiguous to measure in the field. When these concepts define more clearly, then we will review it to apply for 1999 TUS.

We add several activities in the classification while doing the pilot survey to incorporate new activities, while were observed during the fieldwork and special activities due to period of survey. For exemple, we added new codes in our classification for telephone conversation, smoking, and filling in time use diary. Because of the period of survey is close to ‘*choochuk*’ (a kinds of thanks giving day in Korea), we add a code for activities related to visiting a family grave and cutting the weeds around a grave.

### 3.3 Some issues in Classification of activities

Activities represented as a production within the SNA production boundary were classified in major group 2, "employment." The group includes four subdivisions such as employment for establishments, second jobs, self-employed work (agriculture, forestry, and fishing), and unpaid family work.

Activities which fell within the general production boundary but outside the SNA boundary was classified in major group 4, 5 and voluntary services within major group 6. Group 4 represents household maintenance, management and shopping for own household comprises services which are performed by

members of the household for their own household. Group 5 contains care for family, preschool children, 7 years old and over children, spouse, elderly and parents. It means individual services pertaining to the physical and educational care of children and care provided to other members of the household who are sick or elderly. In major group 6, there are activities related to cover community activities and voluntary service

Major group 1, 3, 7, 8 covers non-production activities. Major group 1 covers personal care and self-maintenance activities such as sleeping, eating, take resting. The educational activities category (3) covers attendance in formal education and other types of schooling and vocational training, including studying in preparing for classes, and examinations. Major group 7 covers activities that are primarily for personal benefit and are related to religious activities or personal conversation.

Major group 7 covers cultural and leisure activities including mass media-related activities. This covers activities related to the use of mass media, such as watching television and video, listening to the radio, reading newspaper and novels, etc. Also cultural activities include other things, such as indoor and outdoor sports participation, playing game and other pass-time activities, and spectator to sports game or exhibition. Lastly major group 8 presents travel related to work and to school. We got the information about the means of travel.

The 2-digit coding scheme was adopted as follow:

#### 1 PERSONAL CARE ACTIVITIES

- 11 Sleeping
- 12 Eating/drinking
- 13 Personal hygiene
- 14 Health care
- 19 Personal care activity n.e.c

#### 2 EMPLOYMENT RELATED ACTIVITIES

- 21 Employed work/Self-employed work
- 22 Unpaid work in family business
- 23 Unpaid work on family farm
- 24 Unpaid work in family garden
- 25 Job seeking
- 26 Purchasing employment related goods
- 29 Employment related activities n.e.c

#### 3 EDUCATION ACTIVITIES

- 31 School/University
- 32 Informal education
- 33 Purchasing education related goods

#### 4 DOMESTIC ACTIVITIES

- 41 Food preparation/cleanup
- 42 Laundry and clothes care
- 43 Cleaning dwelling and arrangements
- 44 Household upkeep
- 45 Purchasing domestic goods
- 46 Household management
- 49 Domestic activities n.e.c

## 5 FAMILY CARE

- 51 Preschool child care
- 52 School child care
- 53 Spouse care
- 54 Parents care
- 55 Family care n.e.c

## 6 VOLUNTARY WORK AND COMMUNITY PARTICIPATION

- 61 Helping/doing favors
- 62 Community participation
- 63 Civic obligations, ceremonies
- 64 Unpaid voluntary work

## 7 SOCIAL LIFE / RECREATION AND LEISURE

- 71 Social activities
- 72 Mass media
- 73 Attendance of free-time courses for adults
- 74 Religious activities
- 75 Entertainment (as spectator)
- 76 Sport and outdoor activities
  
- 77 Hobbies, games and other leisure activities
- 78 Window shopping
- 79 Recreation and leisure n.e.c

## 8 TRAVEL (by purpose)

- 811 Personal care
- 821 Commuting
- 822 During work
- 831 Education
- 841 Domestic activities
- 851 Family care
- 861 Voluntary work and community participation
- 871 Social activity
- 872 Recreation and leisure

- 891 Other purpose
- 800 Waiting for a bus, train, etc.

## 9 OTHERS

- 919 Filling in time use diary
- 999 Others

### **3.4 Methodological issues relevant to the classification (from the pilot survey)**

The classification or diary coding lists have been discussed in many workshops of the Eurostat time use expert group and UNSD expert group on trial international classification for time-use activities. And also many international organizations (ILO, OECD, UNESCO, and UN/NSTRAW, etc.) commented about classification of activities. The pilot survey which was conducted in this year in Korea attempts to develop a suitable starting point for creating a national coding list, with concerning of the coding system of the Harmonized European Time Use diary and of the UN's proposal.

#### **3.4.1 Main Activities**

The respondents record their activities in their own words in the diaries (2nd pilot survey) or record pre-coded classified number of their activities in the short form diary (1st pilot survey). The pilot survey requested respondent to record main activities and secondary activities per each unit of record-time such as 10 or 15 minutes. The time diaries have interval of any duration. For 1st pilot survey, pre-coded diary with 15 minute's interval was applied. For the second pilot survey, after-coded diary with 10 minutes time interval was used. Finally, we decided the form of time diary as an after-coded diary with 10 minutes time slot.

The major issue of the pilot survey related to classification of activities was founded in major group 8, travel. Travel should be classified by propose of the activities. According to our classification, spent time for travel is divided by only three types of travel, related to work, related to school, and unspecified travel. The results from those kinds of coding system are not meaningful to evaluate and interpret the patterns of time use by person. It would be better to adjust the UNSD's framework which suggest classification for concerning of purpose of travel.

Time spent in the waiting for something is, also, needs more study to make meaningful category. It is very common activity and forms a significant component of some types of activity, for exemple, taking bus, searching for employment, getting for ticket, visits to hospital or bank, paying for services, etc. However, the time for those activities had often not been reported or under-reported in the diaries of respondents in our pilot survey, too. This problem had been pointed out by researcher and by other country's experience. In the main survey, we include a code for activities related 'waiting for a bus, train, and other transport'.

Another issue suggested that the employment activity group needs further clarification to make the groups operational. Especially, for small-scaled, self-employed work, there is a lot of ambiguous between working time and waiting for customer or taking relaxation in their own business place. It was suggested that further research and study would be needed to determine the contextual variables and the response categories expected. In these context, we include code for 'breaks between work' to distinguish with relaxation or doing nothing.

The civic activities and voluntary services are relevant to non-market production in the household or community sector, even it is outside the SNA. On the other hand, personal socializing and religious activities are related to personal benefit. Therefore, the results of pilot survey suggested separation for those activities in main-survey. Now, we separated personal socializing and religious activities into social life category not in voluntary work and community participation category.

### **3.4.2 Secondary Activities**

The pilot survey designed for main activities and secondary activities. The main activities are found in the activity column to the left in the diary, the secondary activities are found in the right side in the diary in after-coded questionnaire (the 2nd pilot survey). For pre-coded diary in the 1st pilot survey, the main activities are found in the upper line, when the second activities are set in the lower line in the diary. Secondary activities coded to the same codes as primary (main) activities code system presented above.

Many people usually can perform several activities at the same time. The activity that for some reason is the most important one generally is called the main activities (primary activities) whereas other activities can be designated as secondary activities. The observation of secondary activities will require additional efforts from the respondents and the experiences with observation of secondary activities cannot be called an unqualified success.

One of the important issues suggested for further research concerned what was generally referred to as supervising children, especially for infant and less than 2 years old children. Since a significant part of these activities took place concurrently with other activities, such as watching television, doing dish wash or housework, reading newspaper, etc., indications of the time spent on supervising children would have to be obtained as secondary activities. Therefore, well-designed diary with having secondary activity's category is important, unless the amount of spent time for supervising children should be underestimated in time use survey. For 1999 Time Use Survey, we design the time diary based on 2<sup>nd</sup> pilot survey. The main activities are found in the activity column to the left in the diary, the secondary activities are found in the right side in the diary in after-coded time diary. And we coded both activities and will analyze for both activities

### **3.4.3 Other episode dimensions: Location and mode of transport**

In the Eurostat's pilot survey diary there is no column for the respondent to record location. It is presumed that it is possible to code the location from the other variables collected in the diary. In 1999 Time Use Survey in Korea, we including a column which respondent record whether they were in the house or out of the house.

The Eurostat's pilot survey diary included mode of transport in the location code. It will reduce the amount of codes to be included in the primary activities and fit well to the content of the location. In our Time use Survey, the codes for mode of transport were applied. The results showed it surveyed well.

## **4. Results of the Time Use Survey**

### **4.1 Field Operation**

#### **4.1.1 Field procedures**

The research design and survey planning was conducted by division of social statistics in central office of NSO. The pilot survey was conducted three times in May, September and November in 1998 for testing questionnaire and developing field operational system. The final field test, the dress rehearsal, was conducted in May this year and the results analyzed to apply the main survey.

From the dress rehearsal, TUS team had particular experiences in the field operation aspect. The survey covered nation-wide region through 47 local branch offices in every provincial capital and small cities. It conducted in a same manner of the main Time Use Survey. The experiences of the dress rehearsal provided guideline for the main survey.

The 850 field interviewers were hired and utilized in the 1999 Time Use Survey. The regular interviewers within 48 local branch office of NSO were also utilized as a field supervisor for part time interviewers.

#### **4.1.2 Procedure of survey**

Pilot survey: 1<sup>st</sup>/ May, 2<sup>nd</sup>/ September, 3<sup>rd</sup>/ November in 1998

Determined sample size and questionnaire: April 1999

Dress Rehearsal : May 1999

Sampling : June 1999

User Advisory Group Meeting : July 1999

Recruitment of interviewers : July-August 1999

Recruitment of editor : July-August 1999

Training of the interviewers and editor : August 1999

1998 TUS enumeration period : 2 – 14 September 1999

Diary coding in local branch office by interviewers : 15 – 17 September 1999

Editing in local branch office by interviewers : 27 September – 1 October 1999

Diary coding , editing and data punch in central office : November – March 2000

Analyzing the data : April – June 2000

Schedule of releases (expected release date)

First report on 1999 Time Use Survey : 30 July 2000

Tabulation service : November 2000

Final report on 1999 Time Use Survey : November 2000

## **4.2 Response**

### **4.2.1 Response rates of household and individual questionnaires**

Enumeration of the 1999 Time Use Survey ended on September 14, 1999. Based on preliminary analysis, overall response rate was very high than that for the pilot survey and dress rehearsal. Of the 17,000 issued addresses, 9 household proved to be out of scope (i.e. recently moved out empty house), 16,991 households was eligible sample. Household interviews were successfully obtained at 16,377(96.4%) of these.

The number of eligible individuals (aged 10+) in the 16,991 households which completed the household questionnaire was 45,362. Of these, 42,973 (94.7%) completed individual questionnaires, among them 42,432(98.7%) completed both diaries and 541 completed diaries for one day.

**Table 4. Response rate**

<b>Outcome</b>	<b># of household</b>	<b># of person</b>	<b>%</b>
Issued	17,000	45,705	
Ineligible	9	343	
Eligible sample	16,991	45,362	100.0
Refusal	614	2,389	5.3
Productive	16,377	42,973	94.7

### **4.2.2 Response by the gap between diary days**

The number of diaries collected was fairly evenly distributed across dates and days, as is shown in Table 4. The number of eligible diaries was 85,405. Of these, 34,137(40.0%) diaries filled in through weekday. 17,345 (20.2%) diaries completed on Friday, individual questionnaires, 16,960 (19.9%) diaries completed on Saturday, and 16,963(19.9%) diaries completed on Sunday. These results also can be changed slightly, because it came from draft data without having editing procedure.

**Table 5. Number of collected diaries (preliminary outcomes)**

<b>Date</b>	<b>Day</b>	<b># of collected diaries</b>
September 3	Friday	8,834
September 4	Saturday	8,831
September 5	Sunday	8,855
September 6	Monday	8,567
September 7	Tuesday	8,556
September 8	Wednesday	8,514
September 9	Thursday	8,500
September 10	Friday	8,511
September 11	Saturday	8,129
September 12	Sunday	8,108
Total		85,405

### 4.3 The data: quality and completeness of the diary

The unit of time for recording activities in the time-diary was 10 minutes. These 10 minutes slots of activities can be amalgamated into *episodes*, periods of time during which there is no change in any of the variables relating to the time reference period. Namely, activity episode described all the things a person was doing which related to a particular activity. Episodes can be amalgamated into events, periods of time when the main activity does not change, regardless of whether some of the other related variables may change.

Episode can be used as a measurement of quality of data. Because, the more detail a respondent provides on the diary, the more different activity episodes and events there will be in diary. Greater detail can be assumed to correspond with greater accuracy. The average number of episodes per diary day is a key indicator of the quality of the data obtained. Without any editing or imputation of the data, the overall mean number of episodes was 31.9 (see table 6). Table 6 compares the average number of episodes reported by dates. There are not many differences among date, but average number of episodes is slightly down on weekend than those of weekday.

**Table 6. Average number of episodes by dates (preliminary outcomes)**

<b>Date</b>	<b>Day</b>	<b>Average # of episodes</b>
September 3	Friday	32.8
September 4	Saturday	31.8
September 5	Sunday	32.8
September 6	Monday	30.3
September 7	Tuesday	32.4
September 8	Wednesday	32.7

September 9	Thursday	32.6
September 10	Friday	32.6
September 11	Saturday	31.8
September 12	Sunday	30.0

## CONCLUSION AND SUGGESTION

In summary it can be concluded that the 1999 Time Use Survey in Korea has been rather successful. According to expectations the response rate is lower than in other kinds of survey which were conducted by NSO, but the preliminary results of survey presented high level of response rate and high level of average number of episodes. Therefore, we can say that the quality of data provided by the diaries is relatively high.

The experiences of first time use survey in Korea gave us several suggestions. In this survey, we enumerated the diaries during 12 days in certain fixed period. However, in order to nullify the seasonal influences which affect time use patterns and daily life style, the survey will take place relatively long period than 12 days. Therefore, it needs to improvement our survey to cover all seasons. The future time use survey in Korea should be conducted at 4 times throughout the year.

Based on the results and experiences of the 1999 Time Use survey in Korea, NSO will continue with its analysis and will report the methodological results of it. We believe we accumulate much information that could be of particular use to the plans for a main survey. Now, we need to consider that we will make this experience and information comparable with other countries' and international proposal for the time use survey. We hope the sharing of information and experience will improve the methodology of the time use survey. This is a meaningful step in the way to integrate paid and unpaid work in the SNA and evaluate the economic value of the unpaid work.

## ANNEX 1

### **ACTIVITY CLASSIFICATION: Time Use Survey in Korea**

#### **1 PERSONAL CARE ACTIVITIES**

- 11 Sleeping
  - 111 Sleeping
  - 112 Nap
- 12 Eating/drinking
  - 121 Eating a meal with family
  - 122 Eating a meal with other persons
  - 123 Eating a snack or drinking a non-alcoholic beverage
- 13 Personal hygiene
  - 131 Personal hygiene (ex. Washing, showering, shaving, using the toilet, etc.)
  - 132 Dressing, make-up (ex. Getting ready to go out, skin, hair preparations, etc.)
  - 133 Purchasing personal care services
- 14 Health care
  - 141 Personal medical care
  - 142 Purchasing medical care service
  - 143 Rest because of illness
- 19 Personal care activity n.e.c.
  - 199 Personal care activity n.e.c

#### **2 EMPLOYMENT RELATED ACTIVITIES**

- 21 Employed work/Self-employed work
  - 211 Main job
  - 212 Other jobs
  - 213 Breaks
  - 214 Training
  - 215 Work brought home
  - 216 Employed work/Self-employed work n.e.c.
- 22 Unpaid work in family business
  - 220 Unpaid work in family business
- 23 Unpaid work on family farm
  - 230 Unpaid work on family farm
- 24 Unpaid work in family garden
  - 240 Unpaid work in family garden (ex. Gathering nuts, mushrooms, not for sale)
- 25 Job seeking
  - 250 Job seeking
- 26 Purchasing employment related goods

- 260 Purchasing employment related goods
- 29 Employment related activities n.e.c
  - 299 Employment related activities n.e.c

### **3 EDUCATION ACTIVITIES**

- 31 School/University
  - 311 Classes and lectures
  - 312 Breaks
  - 313 Self study at school (ex. Self study before, after or between classes)
  - 314 School/University events during class time (ex. School excursion, Field day)
  - 319 School/University activities n.e.c
- 32 Informal education
  - 321 Study at informal institutions
  - 322 Homework
  - 329 Informal education n.e.c.
- 33 Purchasing education related goods
  - 330 Purchasing education related goods

### **4 DOMESTIC ACTIVITIES**

- 41 Food preparation/cleanup
  - 411 Cooking meals, setting table
  - 412 Clearing table, washing dishes
  - 413 Preparing food for later use
- 42 Laundry and clothes care
  - 421 Washing and hanging
  - 422 Folding and putting clothes into/from the wardrobe
  - 423 Ironing/care of clothes and shoes
  - 424 Purchasing clothes care services
  - 425 Clothes making
- 43 Cleaning dwelling and arrangements
  - 431 Arranging and tidying items inside the house
  - 432 Cleaning dwelling (ex. Dusting, vacuuming, washing floors, etc.)
  - 433 Cleaning yard, veranda, garage (ex. cleaning windows, packing for a trip)
- 44 Household upkeep
  - 441 Home/equipment repairs
  - 442 Vehicle maintenance
  - 443 Other home maintenance (ex. Disinfecting the house, tending plants/pets)
- 45 Purchasing domestic goods
  - 451 Purchasing daily necessities/groceries
  - 452 Purchasing half-durable consumer goods
  - 453 Purchasing durables

- 46 Household management
  - 461 Keeping household accounts
  - 462 Planning and arranging, budgeting
  - 463 Administrative service
    - e.g.) Visiting bank, municipal authorities, post office, etc.
- 49 Domestic activities n.e.c
  - 499 Domestic activities n.e.c

## **5 FAMILY CARE**

- 51 Preschool child care
  - 511 Physical care of preschool children
  - 512 Reading or playing
  - 519 Preschool child care n.e.c
- 52 School child care
  - 521 Physical care of school children (ex. Preparing children for school.)
  - 522 Teaching the child (ex. Helping with homework, guiding and playing, etc.)
  - 523 Visiting school (ex. Attending parent-teacher meetings, etc.)
  - 529 School child care n.e.c
- 53 Spouse care
  - 530 Spouse care (ex. Massaging, mental or physical help)
- 54 Parents care
  - 540 Parents care (ex. Physical care, washing, Accompanying parents to doctor)
- 55 Family care n.e.c
  - 550 Family care n.e.c (ex. Relatives care)

## **6 VOLUNTARY WORK AND COMMUNITY PARTICIPATION**

- 61 Helping/doing favors
  - 610 Helping/doing favours for friends, neighbours (ex. Except for family)
- 62 Community participation
  - 620 Community participation
- 63 Civic obligations, ceremonies
  - 630 Civic obligations, ceremonies
- 64 Unpaid voluntary work
  - 641 Voluntary work for national or local events
  - 642 Voluntary work for school or kindergarten children
  - 643 Voluntary work for the handicapped or the aged, etc.
  - 644 Rural communities, natural disaster relief activities
  - 649 Unpaid voluntary work n.e.c

## **7 SOCIAL LIFE / RECREATION AND LEISURE**

### 71 Social activities

#### 711 Telephone conversations

e.g.) Conversations with members of the family, friends, relatives, etc.

#### 712 Social activities and conversations with members of the family, relatives

e.g.) Parties, visits, participating in family ceremonies, etc.

#### 713 Social activities and conversations with friends, neighbours

e.g.) social activities with people other than family and relatives

#### 714 Visiting a family grave/cutting the weeds around a grave

#### 719 Social activity n.e.c

### 72 Mass media

#### 721 Reading newspapers

#### 722 Reading magazines

#### 723 Watching TV

#### 724 Watching movies on video

#### 725 Listening to radio

#### 726 Listening to records/CDs/Tapes

#### 727 Accessing internet

### 73 Attendance of free-time courses for adults

#### 731 Language

#### 732 Computer related

#### 733 Courses for a qualifying examination/employment examination

#### 734 Hobby related

#### 739 Attendance at free time study and courses n.e.c

### 74 Religious activities

#### 741 Activities practised alone or with family(ex. Praying, reading bible at home)

#### 742 Religious services (ex. Visiting church, temple for worship, etc.)

#### 743 Religious activities n.e.c

### 75 Entertainment (as spectator)

#### 751 Movies/cinema (ex. Watching a movie at a cinema, not home)

#### 752 Concert/theatre

#### 753 Museum/exhibition

#### 754 Sports event

#### 759 Entertainment (as spectator) n.e.c

### 76 Sport and outdoor activities

#### 761 Walking

#### 762 Climbing/Hiking

#### 763 Exercise for personal fitness (ex. Aerobics, yoga, swimming, etc.)

#### 764 Other sports (ex. football, badminton, bowling, surfing, etc.)

#### 765 Driving/Sightseeing (ex. Driving for pleasure, looking at views, etc.)

- 766 Outdoor activities n.e.c  
(ex. Fishing, camping, visiting an amusement park)
- 77 Hobbies, games and other leisure activities
  - 771 Reading books
  - 772 Computer games
  - 773 Playing/gambling (ex. Playing with toys, playing cards, etc.)
  - 774 Hobbies/arts/crafts
  - 775 Drinking alcohol/Singing at a commercial singing establishment
  - 776 Smoking
  - 777 Resting (ex. Doing nothing)
- 78 Window shopping
  - 780 Window shopping
- 79 Recreation and leisure n.e.c
  - 799 Recreation and leisure n.e.  
(ex. Enjoying memorabilia, keeping a diary)

## **8 TRAVEL (by purpose)**

- 811 Personal care
- 821 Commuting
- 822 During work
- 831 Education
- 841 Domestic activities
- 851 Family care
- 861 Voluntary work and community participation
- 871 Social activity
- 872 Recreation and leisure
- 891 Other purpose
- 800 Waiting for a bus, train, etc.

## **9 OTHERS**

- 919 Filling in time use diary
- 999 Others

## **LOCATION**

- 0 Outside home (ex. Workplace, school, other person's home, etc.)
- 1 Home

## **MODE OF TRAVEL**

- 2 Travelling on foot
- 3 Travelling by urban bus
- 4 Travelling by subway
- 5 Travelling by taxi
- 6 Travelling by passenger car
- 7 Travelling by bicycle, motorcycle, commuter bus, school bus, etc.
- 8 Travelling by train, suburban bus, long-distance bus
- 9 Others (ex. Truck, cultivator, airplane, boat, etc.)

**Expert Group Meeting on Methods for Conducting Time-Use Surveys  
23-27 October 2000, New York**

## **1999 Time Use Survey : Republic of Korea**

prepared by Dr. Aelee Shon, NSO

### **1. How data collection on time-use fit into the national statistical system**

*a. Is this the first national or pilot time-use survey (TUS) for the country?*

The 1999 Time Use Survey is the first nation-wide survey in Korea which conducted by National Statistical Office. However, there were several small-scale time use surveys have been conducted by the academic community and by the Korea Broadcast system (KBS).

*b. How is this TUS related to other surveys conducted by the national statistical system?*

The Time Use survey in Korea was conducted independently of the other surveys. The research design and survey planning was conducted by division of social statistics in central office of NSO. The pilot survey was conducted three times in May, September and November in 1998 for testing questionnaire and developing field operational system. The final field test, the dress rehearsal, was conducted in May this year and the results analyzed to apply the main survey. From the dress rehearsal, TUS team had particular experiences in the field operation aspect. The survey covered nation-wide region through 47 local branch offices in every provincial capital and small cities. It conducted in a same manner of the main Time Use Survey. The experiences of the dress rehearsal provided guideline for the main survey. The enumeration period of the Time Use Survey was 2 – 14 September 1999.

*c. What were the major factors or events that led to the decision to collect nationally representative data on time-use?*

One important motivation for the development of the time use survey is to meet government's need for measuring the quality of life and pattern of time spent of the people. Recently interest in production by households is rapidly increasing, because the SNA 93 recommends that the account include unpaid production of services in the household. Many countries are recognized that undeniable goods and services produced within households are contributions to national economic property. However, the measurement of the value of these kinds of productions is far from simple. By definition unpaid production can't be observed directly in terms of money, thus alternated methods will have to be chosen. The recent

initiatives by EUROSTAT and the Fourth UN World Conference on Women in Beijing, where the Global Platform for Action was adopted including a commitment to measuring unremunerated work, have initiated a new momentum to establishing time use survey in Korea.

*d. What are the plans for the next five years on data collection on time-use?*

- 2001: research project will be promoted by using the results of the survey
- 2003: revision of the instrument (i.e. activity classification & questionnaire) and conduct the pilot survey for the 2<sup>nd</sup> time use survey
- 2004: 2<sup>nd</sup> Time Use Survey will be conducted at 2004 (every 5 year interval)

## **2. Survey objectives**

*a. What are the specific objectives of the TUS?*

The principal objectives of the time use survey were as following.

- to estimate what people do, how they spend their time, what does everyday life look like, how much time is spent on gainful employment, unpaid work, leisure activities, personal activities, how do population groups and countries differ in these respects.
- to provide basic data and new information about the volume and pattern of the unpaid women's household work
- to gain the balance between the reproductive and leisure activities or the work and family relationship
- to deduce policy implications from the result of the time use survey such as sharing of household work by men and women for gender equity, and spreading of paid and unpaid work in rural area

*b. Who are the expected users of the survey results? In the country? Internationally?*

The expected users of the results from 1999 time use survey will be the policy makers in the Ministry of Finance and Economy, Ministry of Labour, PCWA, etc. And academicians, researchers, planner of enterprise and member of the non-governmental organizations.

*c. What were the main findings?*

Main finding might be provided after release the final report and publication. The data is analyzing now, and the final report will be release at the end of November.

### 3. Design specifications of survey and factors considered in design decisions

#### *a. Relating survey objectives, design and resources*

*a-1 . Was the TUS designed as an independent survey or a module/rider in a multipurpose or core survey (For example, module of labour force survey)?*

The 1999 Time Use Survey in Korea was conducted independently. The field survey has been done during 2-14 September, 1999 by temporary hired interviewer only for Time Use Survey. The sample has been selected for this survey.

*a-2. Why did you choose this particular survey design? Describe briefly how objectives and resources influenced decisions on choice of design.*

There was no previous time use survey or similar survey what related on time spent patterns. And the concepts and instruments for the time use survey were not developed before. Therefore, it needs several pilot surveys and literature reviewing to develop the survey. After reviewing, we decided several directions. First we decide to include all household member who are 10 years old and over. However, labour force survey in Korea includes person who are 15 years old and over. And we don't want to disturb the labour force survey by pushing respondent to fill out more detailed and complicated questions such as their daily life. Most important thing is financial condition. The government of Korea is likely to support the new Time Use Survey fully. That's why we conducted the survey independently.

*a-3. What was the total survey cost? How does this cost compare to other household surveys that the statistical office conducts?*

The total cost of the survey was approximately 1,000,000,000 won (US \$ 900,000). It includes field work and data entry and editing for pilot survey and main survey. But, it doesn't include basic cost such as salary and management cost of the NSO. The R&D cost for questionnaire development, training of investigators and interviewer, generating of final tabulation and publications, etc. were completed at NSO without hiring any additional researcher or staff. Considering this condition, the total cost estimates given here are relatively lower than actual cost, so the cost of this survey is kind of expensive one than other survey.

- For pilot survey, \$30,000,
- main survey \$ 770,000,
- data entry, editing & publication \$100,000

*b. What was the method of data collection? [self-completed current diary? recall interview or retrospective diary? participant observation? combinations of self-completed/recall/observation?]*

For collecting the Time Use Survey data in Korea, combinations of self-completed and interviewing method have been applied. Interviewers conducted face-to-face interviews for collecting demographic background characteristics for members of households and household characteristics. The questionnaire was divided into three parts. The first part related to household characteristics. The second part contains individual demographic characteristics such as status of employment, income, total work hour, second job, feeling of time, etc. The last part is a time diary with 10-minute slots. The first part was administered to a responsible person in each selected household by any responsible adult (ARA method). Usually, the spouse of the household head who is dominated by adult women responds to this part. After completion of this part, the interviewer explained how the diary should be completed. They then leave the time diary at the household. Then, every household member over 10 years old filled out the time diary by themselves during 48 hours.

- time diary: self-completed
- demographic and household characteristics: interviewing

c. What were the survey instruments used in the TUS?

*c-1. Type of basic instrument for collecting time-use data?*

For collecting the data, a full time diary has been applied in Korea. The time diary started from 0 A.M. to midnight 24:00 P.M. The time interval taken was a 10-minute fixed interval. Therefore, a one-day time diary has 144 lines which respondents can write down their activities. The respondents were asked to enumerate the activities performed by them in each of the 10-minute slots, and they can write their activity at most 144 for one day.

*c-2. Design specifications for basic instrument for collecting time-use data, eg, For full time diary: whether time interval is open or fixed; if fixed, length of interval?*

The time diary for the 1999 Time Use Survey in Korea was a fixed form with a 10-minute interval. We tested several different types of time intervals at the pilot survey, such as 15-minute intervals, 20-minute intervals, and 30-minute intervals. Finally, the fixed form with a 10-minute interval has been selected for the main survey.

*c-3. What background questionnaires were used? What additional questionnaire items were included for time-use data analysis?*

- household characteristics : type of dwelling, ownership of the house, floor space of the housing, ownership of the automobile, childcare pattern: who, where, how much
- individual characteristics : relationship with head of household, sex, age, educational level, marital status, time stress and subjective feeling of it, economically active status, occupation, industry, employment status, contract condition and contracted period, actual total labour hour in weekly, contracted labour hour in weekly, monthly income, second job and total hour

*d. Did the survey collect information on simultaneous activities?*

*If yes, up to how many? Were the activities prioritized (for example, main/primary, secondary/parallel)? What proportion of diaries reported simultaneous activities? What were the five most common combinations of simultaneous activities?*

In this survey, information on simultaneous activities was collected. According to respondents will or subjective thought, primary and secondary activities can be distinguished if they committed more than one activities in the same time. In order to ensure the total time to be exactly 24 hours, the total time spent on secondary activities was excluded at that tabulation. However, we count the amount of time spent on secondary activities when we analyzed the total time for certain activity. For example, when we tabulated the total spent time for watching the TV, then we calculate the total time with combine both primary and secondary activities' time. We don't report the result of secondary activities fully yet. But, we tabulated secondary activity for some category (child care and watching the TV which was most frequently occurred as a secondary activity)

*e. Did the survey collect information on context variables?*

*If yes, what were these context variables (for example, paid/unpaid; for whom; with whom; for what purpose; location)*

*The survey did collect information on contextual variables. For each of the activities reported by the respondent, information was collected whether the activities were performed within the household or outside household.*

- location (for 24 hour : at home/ outside)
- with whom (just for eating activity: with family/ or not)
- for whom (just for family care activity: preschool child/ school child/ spouse/ parents/ other family member)
- paid/unpaid (just for 'work in family business'/ 'work on family farm'/ 'work on family farm and garden not for sale')

*f. Time sample*

All days of the week were represented. In order to get an even distribution of all days of the week, interviewer were given same number of household based on weekday and weekend with pre-assigned date by supervisor. Then, it supposed to get rid of the weekend/ weekday effect. Interviewers were also required to work on each weekend day evenly and to work double number of household on weekend day.

For seasonal variation evaluation, we checked the seasonal effect on time use by the pilot survey. Thus, the pilot surveys conducted in different season, such as in the spring, summer, and autumn in this year. In other countries, in Norway, it has been concluded that observation of time use in spring or in the fall provides

an acceptable average for the entire year. Based on the results of our pilot survey, informally productive activities have been effected by season.

Considering the importance of observing seasonal effects when measuring informal production and considering that data on informally productive activities has to be connected with data on other forms of productions the main survey will be spread over the entire year. In considering the situation of Korea, it will be very difficult. Therefore, selection of survey period and duration of survey are very important. The main survey conducted 10 days in September.

*g. Describe the following aspects of defining and sampling the reference population:*

*g-1. What were the considerations in defining the reference population? For example: age cut-offs; type of family, etc*

- all household members, 10 years and older, of selected households
- no age cut-offs for aged person

*g-2. How were sample households selected?*

The data and materials from approximately 22,029 ordinary enumeration districts (ED's), which are 10% of the 1995 population and Housing Census are used for the sample selection. A total of 850 ED's are selected. Within each of the 850 ED's as a primary sampling unit, three contiguous segments are randomly selected as a secondary sampling units (SSUs). The sampling frame was the household address file for Multi-Purpose sample (HAF-MP). This is the frame that is used for most government household survey in Korea.

It is believed to have coverage of around 99% of the residential household.

Then, the 20 households were selected systematically from the SSU using a random start point and a fixed interval. It is the ultimate sampling units (USUs) of the time use survey.

*g-3. How were household members belonging to the reference population selected?*

*For example: all eligible household members are selected; take a sample of one male and one female; one member of the household randomly selected*

- all eligible household members, 10 years and older, of selected households are selected

*g-4. What was the total sample size (households, household members, diaries/questionnaires)? Briefly describe the distribution of sample household members by relevant characteristics.*

- The total sample size is 17,000 household from 850 ED's.

- And, individuals who are 10 years old and over in selected households are 46,109.
- The distribution of sample by sex is male 48.5% and female 51.5%.

#### **4. Activity classification**

*What considerations did you give priority to in developing your activity classification? Was the trial UN Classification of Activities for Time-Use Statistics considered? If yes, how was it used; if no, why not?*

Our classification considered the basic principles for specifying the classification which was recommended by the UN; a) Provide a structure that is consistent with the conceptual framework of the System of National Accounts; b) Ensure comparability with other existing time-use classifications of activity. We agreed to UN suggestion that " . . . although countries were expected to adapt the proposed international classification to their national social and economic realities, every effort should be made to maintain international comparability at the 2-digit level of classification.... "

The activity classification of 1999 Time Use Survey has been developed by NSO. The Time Use Survey team has reviewed Eurostat's and UNSD's framework of classification and referred other countries' such as Australia, Canada, etc.

As we know, classification of activities is crucial in the analysis of time use data. According to their purposes and socio-cultural background, every country developed classification system. In developed countries the classification focuses on understanding a daily life such as free time activities and leisure life, the patterns of social role by sex in domestic work and taking care of children.

In this context, the Eurostat recommended 4 separate categories for free time activities. On the other hands, in developing countries, many issues related to evaluate unpaid work or informal work hour and pattern are raising. In these contexts, the UNSD tried to develop a new scheme of classification of time use activities that meets the needs of both developed and developing countries. In 1999 Time Use Survey in Korea, we considered both trends to develop a new classification for our own purpose and social circumstances.

The main purpose of 1999 Time Use Survey is to explain a daily life style of Korean. However, it could be possible to provide internationally comparable time use data among different countries. Based on this purpose, we developed the classification of activities as follows.

Comparison with UN and EUROSTAT's classification

<b>KOREA</b>	<b>EUROSTAT</b>	<b>UNSD</b>
1.Personal care activities	0.Personal care	0.Personal care and self-maintenance
2.Employment related activities 21.Employed & self-employed work 22.Unpaid work in family business 23.Unpaid work on family farm 24.Unpaid work in family garden (not for sale)	1.Employment	1.Employment for establishment 2.Primary production (not for establishments) 3.Services for income and other production of goods (not for establishments)
3.Educational activities	2.Study	7.Learning
4.Domestic activities	3.Household and family care	4.Household maintenance, management and shopping for own household
5.Family care activities		5.Care for children, the sick, elderly and disabled for own household
6.Voluntary work and community participation	4.Civic and religious activities	6.Community services and help to other household
7.Social life, recreation and leisure 71.Social activities 72.Mass media 73.Learning of non-students 74.Religious activities 75.Entertainment 76.Sport and outdoor activity 77.Hobbies and games	5.Social life and entertainment 6.Sports participation 7.Hobbies and Games 8.Mass Media	8.Social and cultural activities 9.Mass media use
8.Travel	9.Travel & unspecified time use	
9.Others		

## **5. Assessment of design and implementation of field operations for time-use data collection**

### *Organization of field work.*

*a-1. Procedures specific to a time-use survey. For example, how was data from children collected? How was illiteracy addressed? If respondent was not attuned to concept of “clock-time” or time measured in hours/minutes, how was time measured?*

In a time use survey, individual of sampled household is observed. Considering the objective of the study, it might be very important to measure time use of all members of a household, when interrelationships of behavior, such as division of housework between members of the household. The problem can be appeared in this manner. Namely, it seems likely that the probability of response by all members of the household will be much smaller than the probability of response of one person only. The consequences of interviewing entire households when observing time use as compared with only one (for example KBS study) people almost nowhere come up for discussion in the literature. This design aspect is closely related to another: it will hardly be possible to obtain response from all members of the household when interviewing face-to-face whereas this might work when respondents have to complete the forms themselves.

In the first and second pilot survey, all members (12 years and above) of a sampled household are requested to fill in time diaries for the same days. In the third, it has been requested to interview each member of the sampled household who is 10 years of age and older. We attempt to figure out the response rate and quality of response of the youngest and the oldest age group. The sample size of pilot survey was not big enough to estimate those aspects. However, for international comparison of time use data, we decide to include 10 years of age and older for main survey.

*a-2.. Were incentives used to increase response rates and cooperation?*

According to results of the pilot survey, effect on response rate appears substantial. Giving a present evidently raises the costs of the survey, but also raises the response rate. As a time use survey requires some effort of the respondent, in particular when having to keep a diary during a number of days, it has been decided to examine whether the handing over of a present is effective or not.

However, incentive for individual or for household itself is not efficient enough in case of single person household or large number of family. Each respondent received a pre-paid telephone card which valued 2,000 won (approximately \$2) if he/she completed and returned all the required documents (questionnaire and diaries). And, any person who representative their household and fill out the ‘household questionnaire’ received a another present which valued 10,000 won (approximately \$10). The use of such an incentive has a positive effect on response.

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*a-3. What was the average length of interview?*

- about 30minutes for household and individual questions
- another 30minutes per each day for checking the diary context and helping them how to fill the diary up (for 2days)
- about 30minutes for pick up the completed diary
- average time for fill-up the one-day diary is 30 minutes for every respondent

*a-4. How many callbacks were allowed for in instructions and what was the actual number of callbacks needed on average?*

- we requested 2 times callbacks at least per each household
- average number were approximately 2.5

*a-5. Was substitution of households and/or respondent allowed? Why or why not? Provisions for controlling nonresponse?*

- Substitution of households or respondents wasn't allowed, as that would have compromised the representative of the sample. No allowance of substitution is NSO's major principle.

#### *Recruitment and training of field staff for the TUS*

The research design and survey planning was conducted by division of social statistics in central office of NSO. The pilot survey was conducted three times in May, September and November in 1998 for testing questionnaire and developing field operational system. The final field test, the dress rehearsal, was conducted in May this year and the results analyzed to apply the main survey.

From the dress rehearsal, TUS team had particular experiences in the field operation aspect. The survey covered nation-wide region through 47 local branch offices in every provincial capital and small cities. It conducted in a same manner of the main Time Use Survey. The experiences of the dress rehearsal provided guideline for the main survey.

The 850 field interviewers were hired and utilized in the 1999 Time Use Survey. The regular interviewers within 48 local branch office of NSO were also utilized as a field supervisor for part time interviewers.

#### *Field coding and field editing of time-use activities*

All interviewers, 850 individual, did their own coding and editing right after collection the questionnaire and diaries. Because we assigned 20 household per each interviewer, the average number of individual which need coding per interviewer was 45 person, it means each interviewer has to coding and editing 20 household questionnaire, 45 individual questionnaire, and 90 time diaries. Thus, we hired all interviewers 3 more extra days for coding intensively. After then, we hired 425 individual among 850 for editing again. It takes 5 days from 27 September to 1 October

- 1999 Time Use Survey enumeration period : 2 – 14 September 1999
- Diary coding in local branch office by interviewers : 15 – 17 September 1999
- Editing in local branch office by interviewers : 27 September – 1 October 1999

## **6. Assessment of design and implementation of data processing of time-use data**

Describe aspects of data processing not discussed previously that had to be considered specifically to address expected challenges/difficulties in processing data on time use and assess success/failure and/or cite problems and measures that were taken/can be recommended to address these.

*a. Were special computer programs developed? What software were used? What hardware were available?*

SAS program used for tabulation and NSO staff wrote the programs to capture the data. We also used SAS for editing and cleaning programs.

*b. Recruitment and training of coders, editors and other data processing staff*

We hired some coders and utilized NSO's staff who employed in NSO as a coder. We do outsourcing for data entry. Except that NSO staff do all other thing about data editing and analyzing prodedure. SO, we don't hire any and for editing and other data processing work. The editinf program was developed centrally by NSO.

*c. Coding, editing and imputation*

We are doing this procedure right now. Therefore we don't have enough information about this question. When we finishing our final report at the next month, we can share this information.

*d. Describe time-use data file: What does a record consist of?*

We don't have a specific guide-line for data file format yet.

## **7. Tabulation plan for time-use data**

*a. How was the tabulation plan developed? Were potential users involved?*

Basically, the NSO prepared the all tabulation plan. The possible users of the data is not involved in the preparation of the tabulation plan in this stage.

*b. What were the basic summary statistics generated?*

We will provide the proportion and total of person's time spent in a day, on a weekday, on a weekend(Saturday and Sunday will be provided separately)

And also we will provide the proportion and total of person's time spent in a day (only include person who did certain activity at least 10 minutes) by sex male/female, age group, educational level, occupational group, urban and rural breakups.

*c. How does the tabulation plan present distinctions of paid and unpaid work?*

There is no plan to make tabulation of paid and unpaid work in the publication now.

*List titles of major tables.*

Not available as yet.

## **8. Dissemination and use of time-use data**

*Were survey results provided to expected users, both in the country and internationally?*

*In what ways have they been used so far?*

The data from final version is nor yet available. we will publish the final report at the end of November, after then we suppose to provide raw data.

*b. In what ways have the survey results been made available to expected users and other audiences?*

*b-1. Publications (printed and/or electronic forms)?*

In terms of publication, we are planning to publish final report at the end of November. The results will be available for users by publications at that time .

*b-2. Workshop, discussion forums, briefings? Public-use-files of data?*

It will be available also. But we didn't decide it yet

*c. How is the time-use data being used to improve measurement of paid and unpaid work?*

KWDI(Korean Women's Development Institution) is working with UNDP fund for evaluating the economic value of the unpaid women's work by using the results of the 1999 time use survey

PCWA(the presidential commission on women's affairs) is monitoring those work and pursuing advocacy to policy maker