

2009-2010

**Time use survey**



**METHODOLOGY REPORT**

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The publication provides an overview of the methodology of the Time Use Survey 2009–2010.  
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# GENERAL INFORMATION ABOUT THE SURVEY AND THE PARTY CONDUCTING THE SURVEY

## 1. General information and purpose of the survey

|                                 |                                                                                                             |
|---------------------------------|-------------------------------------------------------------------------------------------------------------|
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| Metadata update                 |                                                                                                             |
| Legal acts and other agreements | "Official Statistics Act", methodology and questionnaires of Eurostat's Harmonised European Time Use Survey |
| Type of survey                  | Cross-sectional survey                                                                                      |
| Frequency of survey             | Every ten years                                                                                             |
| Time of survey                  | 01.04.2009–31.03.2010                                                                                       |

The Time Use Survey is a multi-purpose survey which provides an overview on people's time use (paid work, housekeeping, leisure time, etc.) and on the differences of women's and men's time use. Additionally, the Time Use Survey enables observing the time spent on travelling from one place to another, the mode of travelling (on foot, by car, public transport, etc.), as well as about the location where time is spent. The survey enables to analyse communication with one's family as well as between households and generations. The results can be used for the development of family policy, employment policy and other fields of social policy.

## 2. History of the survey

Internationally, the active research of time use started already in the 1960s. It is an international survey co-ordinated by the International Association for Time Use Research. Since 1994, the survey is internationally harmonised (on the level of recommendations).

In Estonia, people's time use was observed also during the Soviet period (last in 1988–1989). The diary method was not used then; a questionnaire concerning adult household members was used instead. It is questionable whether these results are comparable with those of later surveys conducted in Estonia.

Statistics Estonia joined the international time use survey project co-ordinated by Eurostat in 1995. Preparation work for a time use survey centred on Estonia started at that time as well: developing questionnaires and harmonising them with Eurostat instruments, working out an Estonian classification based on the international activity coding list and compiling instructive materials. In 1996, a pilot survey was conducted, the results of which were very significant as on the basis of them it was to be decided whether it was possible to study time use with this methodology in Estonia. It is evident that surveys based on the diary method are the most difficult with regard to methodology, as the diary is completed by the respondent on his/her own and the role of the interviewer is not decisive relative to receiving the diary, as well as its timeliness and accuracy. The fact that the diary and questionnaire had to be completed by household members as young as 10 years of age complicated matters further. Additionally, the survey materials included a Household Questionnaire and a week diary. Testing out a survey with such voluminous survey materials, and organising the main survey based on that was not an easy task. The results of the pilot survey, however, showed that some of the fears were groundless. Finding households was what proved to be problematic instead. Elderly persons and children aged 10–11 had difficulties with filling in the diaries.

While planning the survey, an Estonian activity coding list was also designed. In the pilot survey, four-digit codes were used at first, but the results showed that too frequent and precise description of activities loaded the respondent and it was decided to use only three-digit codes in the main survey.

An analysis of the results from pilot surveys of both Estonia and various Eurostat countries indicated that the international methodology is suitable for the survey. After the analyses, Eurostat developed the final version of the time use survey. Estonia's instruments are in harmony with Eurostat requirements, but also include issues concerning the Estonian society.

The preparatory work of the main survey took place in 1997–1998 and the main survey of Statistics Estonia was conducted from 1 March 1999 until 31 March 2000 – fieldwork lasted for a whole year. The results were published in 2001–2003 and on Eurostat level in 2004.

### **3. Time Use Survey 2009–2010**

Ten years passed and a need arose for a new time use survey. More importantly, a new survey would provide the possibility to compare the data of the two surveys and thus analyse the changes in people's time use. One of the most essential objectives of the previous survey was methodological work: to develop the definition of unpaid work and to improve the definition of work with the former. On the other hand, the aim of the survey was quantitative results: an analysis of people's time use by birth cohorts, social status, education, household composition, etc. The last survey had the same aims. The main aim, however, was to analyse the changes of people's time use compared to the period ten years ago.

The preparatory work for the second Time Use Survey started in 2008. A working group, which included employees from Statistics Estonia connected with social surveys, and representatives of ministries and research institutions, was formed in order to determine the survey needs and analysis objectives. Proposals were made to add Estonia-centred questions about transportation use, participation in non-profit associations, voluntary work and leisure time in the questionnaire based on Eurostat characteristics.

The pilot survey was conducted in the autumn of 2008. A focus group was formed where the bottlenecks of the questionnaire and diaries were identified. After the final revision of the questionnaires and diaries, the main survey was carried out and its fieldwork lasted from 1 April 2009 until 31 March 2010.

## **QUALITY OF THE SURVEY**

### **1. Relevance**

#### **State need for a time use survey**

The survey is based on the Time Use Survey developed by Eurostat, as Estonia has joined the international Time Use Survey Project co-ordinated by Eurostat. Thus, the methodology and instrument requirements have been recommended by Eurostat. There are no precise prescriptions as to the time of the survey. Statistics Estonia conducts the survey according to the needs of the state and institutions to collect information on the people's time use. Up to now, the gap between two surveys of similar methodology has been ten years and the next survey is not planned until five years have passed.

In addition to the need to analyse people's time use by birth cohorts, social status, education, household composition, etc. and to observe the difference between men's and women's time use and to compare it with the period ten years ago, research institutions and ministries have also had their specific output requests.

The wish of the Ministry of Economic Affairs was to add a travelling and transport use module in the personal survey as transport concerns several everyday activities. This would contribute significantly to the creation of infrastructures. The Ministry strongly wished for output on the county level as well.

The Ministry of Social Affairs considers it relevant to differentiate between childcare and nursing and to determine the possibilities and services of childcare, as well as the time spent on childcare. It was also important to identify the time spent on nursing the elderly. As for holidays, the Ministry wanted to know how much people rest with their families and children and how much alone or with a companion, and what are the ways of resting. Data were also needed for overtime work (e.g. at home) and odd jobs in order to analyse the possibility of

combining work and family life in the society. One output was how much time is spent on improving one's health and on hobbies in more detail.

The Institute of International and Social Studies considered it important to estimate the time spent for the prognosis of changes and trends of the labour market, and also the trends and importance of lifelong learning, and the time spent on it.

The researcher of civil society Ülle Lepp, and the Ministry of Internal Affairs were interested in estimating civil initiative and volume according to the conception of civil society, and in finding out how much time is spent on volunteering and which organisations people belong to. The survey was also seen as an opportunity to update the definitions of organisations.

The Population and Social Statistics Department of Statistics Estonia wished to retain the module of leisure time (as in the 1999–2000 survey), the aim of which was to find out how much time is spent on culture and sports.

Compared to the previous period, the module had to be adjusted based on the following criteria:

- First of all, the module results of the Time Use Survey 2000 had to be analysed (frequencies, selection of answers – the functioning of the module).
- The questionnaire had to include all essential topics concerning the consumption of culture, as Statistics Estonia does not conduct a separate culture survey, but at the same time there is a need to obtain comparative data on the consumption of culture every three to five years.
- While formulating the questions, the Eurostat manual for cultural statistics (2007) had to be taken into account.
- It was important that the module could be compared with cultural modules in the 2006 Estonian Social Survey, 2007 Adult Education Survey and 2004 Estonian Labour Force Survey.
- If possible, the comparability with the 2000 Time Use Survey was to be maintained.

According to the Eurostat manual and previous Estonian surveys, it was decided to add three main topics to the culture consumption section of the questionnaire:

- visiting cultural events and institutions,
- media and books,
- cultural activities.

Similarly to the previous Time Use Survey, the module was to include general topics on leisure time:

- time use during holidays,
- sports,
- other activities,
- recreation.

While compiling the questionnaires, all these output requests were taken into account and all the required modules were added to the survey.

## 2. Accuracy

### 2.1. Population and sample

#### Population

The population of the Time Use Survey was made up of all permanent residents of Estonia aged at least ten and living in private households as at 1 January 2009, excluding those residing in institutions long-term (at least one year). The survey sample was formulated based on the Estonian Population Register that is administered by the Ministry of the Interior.

#### Sample

The Time Use Survey is a sample survey, i.e. the population is evaluated on the basis of the data collected from the sample. The survey sample was taken from the persons entered in the Population Register who were at least 18 years old as of 1 January 2009. The person who had been selected into the sample (address person) brought his/her household to the survey. All household members aged at least ten were interviewed.

For selecting the respondents from the Population Register, disproportional systematic stratified sampling was used. In the case of this selection, the population is divided into non-overlapping strata and independent systematic sampling is performed for each group, implementing different inclusion probabilities in the strata. The population was stratified according to the county where the address person was residing. The stratification principles developed for and applied to the Estonian Social Survey, which has been conducted on an annual basis since 2004, were used in stratification and three strata were formed on the basis of the population in a county. Hiiu county, much smaller than the others, is a separate stratum, the rest of the counties have been divided into two strata – bigger and smaller. Counties with a population of less than 60,000 inhabitants belong to the stratum of smaller counties (as at 1 January of the reference year).

To avoid getting more than one address person from the same address into the sample, entries in the strata were sorted by addresses, first by the county code, in the county by the rural municipality code, in the rural municipality by the village name, then by the street and finally by the number of the house.

### Sample size

The initial sample included 7,500 persons. In order to avoid burdening the respondents, those who had previously participated in the surveys of Statistics Estonia were excluded. The final size of the sample was 7,225 persons. Table 1 presents the population and sample size, and the inclusion probabilities in the strata.

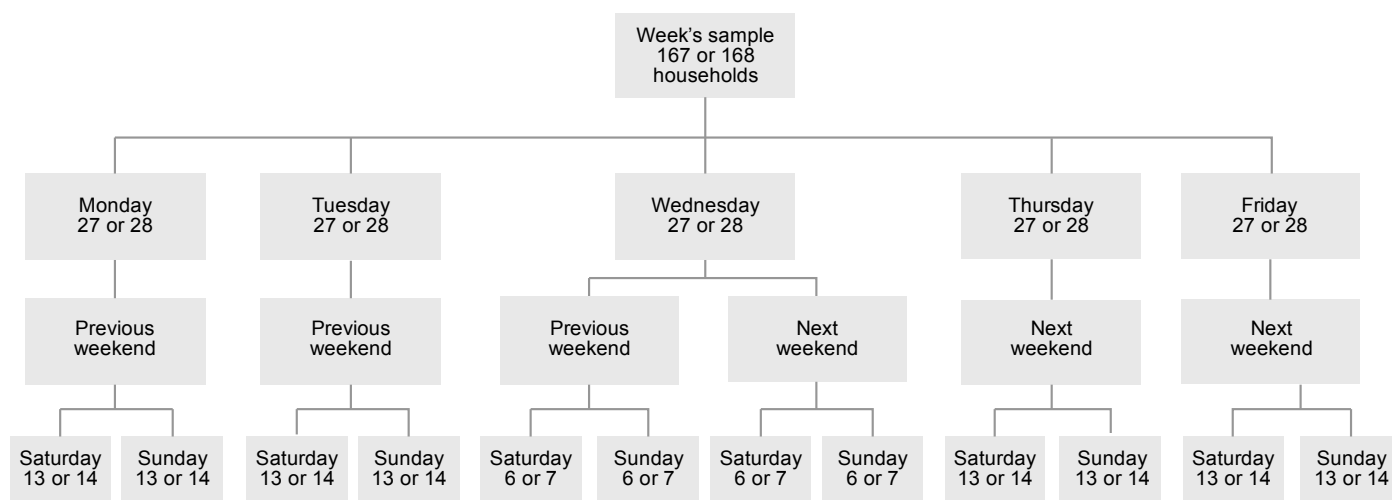
Table 1 **Population and sample size and inclusion probability**

| Stratum number | Region                                                           | Population       | Sample      | Inclusion probability, % |
|----------------|------------------------------------------------------------------|------------------|-------------|--------------------------|
| 1              | Harju, Ida-Viru, Lääne-Viru, Pärnu, Tartu                        | 809 493          | 4347        | 0.005                    |
| 2              | Jõgeva, Järva, Lääne, Põlva, Rapla, Saare, Valga, Viljandi, Võru | 263 933          | 2636        | 0.010                    |
| 3              | Hiiu                                                             | 8062             | 242         | 0.030                    |
| <b>Total</b>   |                                                                  | <b>1 081 488</b> | <b>7225</b> |                          |

### Allocation of sample to diary days

In the Time Use Survey, each 10-year-old or older person had to fill in the diary on one working day (i.e. on one day between Monday and Friday) and on one weekend day (i.e. either on Saturday or Sunday). The sample was distributed between 52 weeks and within the week uniformly between weekdays from Monday to Friday. The weekend day joined to each working day was selected from the nearest weekend. Thus, Monday and Tuesday were always joined to the weekend day preceding them and Thursday and Friday to the weekend ahead. Wednesday's sample was joined equally to the weekend days preceding and following it. This kind of distribution ensured the uniform distribution of Saturday and Sunday with regard to diary days.

Figure 1 **Distribution of the sample to weekdays**





## 2.2. Weighting and calibration

In order to apply the survey results on the population, a weight was calculated for each sample object, which indicates how many elements of the population the object represents in the sample. The weights are calculated on the basis of design weights derived from inclusion probabilities. The weights, which are first adjusted to compensate for the bias caused by non-response, and then calibrated to the population data, were used in calculating the final data. The weights were calculated for households, persons, diaries. The weights for weekday diaries and weekend diaries were calculated separately because the number of respondents was different in the case of each survey material.

The calculation of weights was comprised of the following stages:

- calculation of the design weights;
- non-response adjustment;
- calibration.

### Design weights

The household weights were calculated considering how many options there are to reach this household. Two factors are important here. To begin with, a stratified disproportional systematic sampling of address persons is used for forming the sample. Secondly, the sampling based on address persons granted bigger households a bigger probability of being included in the sample – a household may be included in the survey via every household member who is at least 18 years of age. The design weight of a household and its members is thus in inverse proportion to the size of household.

The design weights are inversely proportional to the inclusion probabilities, which is why inclusion probabilities are calculated first for the sampled persons. A person's inclusion probability in stratum  $h$  is

$$\pi_h = \frac{n_h}{N_h},$$

where  $N_h$  is the total number of persons aged 18 or older in the population stratum  $h$ , and  $n_h$  is the sample size in stratum  $h$ .

The inclusion probability of a household depends on the number of persons aged at least 18 in the respective household; thus, in stratum  $h$ , the probability of the household falling in the survey sample is

$$\pi_i = \frac{n_h}{N_h} \cdot m_i,$$

where  $m_i$  is the number of household members aged at least 18 in household  $i$ .

The design weight of a household is calculated according to the formula:

$$w_i = \frac{N_h}{n_h \cdot m_i}.$$

A design weight was calculated for all households (both for households who responded and who did not). In the case of non-response, the number of persons registered at the address of the sample person was considered as the size of the household (if the number of residents was missing, the household size was 2 persons).

### Non-response adjustment

In sample surveys there is always a certain share of non-respondents (refusal of survey or no contact can be made with those in the sample, etc.), which results in the bias of estimates. To compensate for non-response and frame errors, post-stratification is used first. Post-strata are formed from the population households who differ from each other with regard to response rate and the observed characteristic.

In the Time Use Survey, the post-strata were formed according to the response rate in the sampling strata, taking into account the respondents' residence data (county and urbanisation stage, i.e. place of residence in the city or in the country). The distribution of counties in the sample strata is presented in Table 1 of Chapter 2.1 on page 7 ("Population and sample"). The bases for forming post-strata have been presented in Table 2.

Table 2 **Post-strata**

| Sampling stratum | Number of post-stratum | Groups of counties and regions in post-stratum                       | Response rate, % |
|------------------|------------------------|----------------------------------------------------------------------|------------------|
| 1                | 1                      | Urban region of Harju county                                         | 19.4–21.7        |
|                  | 2                      | All regions of Ida-Viru county                                       | 23.5–26.9        |
|                  |                        | Urban region of Lääne-Viru and Tartu counties                        |                  |
|                  |                        | Rural region of Harju county                                         |                  |
| 2                | 3                      | All regions of Pärnu county                                          | 41.4–52.7        |
|                  | 4                      | Rural region of Lääne-Viru and Tartu counties                        | 25.8–36.5        |
|                  |                        | Urban region of Jõgeva, Lääne, Põlva, Valga and Võru counties        |                  |
|                  |                        | Rural region of Jõgeva, Lääne, Põlva, Saare, Valga and Võru counties |                  |
|                  | 5                      | All regions of Järva, Rapla and Valga counties                       | 50.0–52.0        |
|                  | 6                      | Urban region of Saare county                                         | 42.2–50.0        |
| 3                | 7                      | All regions of Hiiu county                                           |                  |

After post-stratification, the weight of household  $i$  and that of each member is as follows:

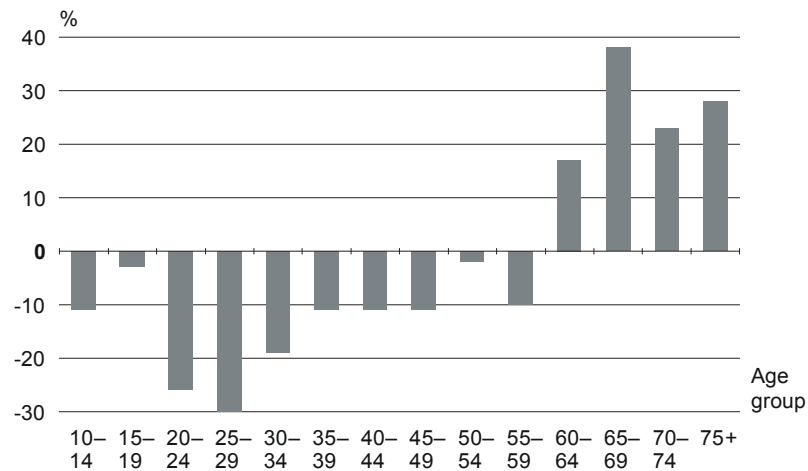
$$w_i^* = \frac{N_g}{v_g \cdot m_i},$$

where  $N_g$  is the number of persons aged at least 18 in the post-stratum  $g$  of the population,  $v_g$  is the number of households in post-stratum  $g$ , who filled in at least one instrument of the survey. The Personal Questionnaire is taken into account as a survey instrument when calculating personal weights and the weekday diary is taken into account in calculating the diaries' weights. The number of persons aged at least 18 in the population equalled the distribution of persons aged at least 18 in Estonia by regions (as at 1 January 2009), minus the number of persons in institutions (prisons, children's homes, nursing homes, etc.). The data on persons in institutions were received from the Ministry of Social Affairs and the Ministry of Justice.

## Calibration

The received weights are still being adjusted, because using them, unbiased estimations could be received on the household level, but on the person's level it must be taken into account that a part of the household members aged ten and older filled in the diaries, but a part of them did not. It is also common that interviewing young working people is much more difficult (they either refuse to participate in the survey or the interviewers cannot contact them) than older persons. It is easier to contact older people and they are also more willing to answer the questions as they have more time. Underestimating or overestimating the number of persons of a certain age also affects the average time use, because, for example, overestimating the number of persons in retirement age may cause underestimating the time spent on paid work. This situation is presented quite precisely in Figure 2, which shows the difference of estimations in post-stratification from the corresponding figures of population statistics, calculated for the number of persons in different age groups based on the data from the Time Use Survey. Underestimation was biggest in the younger age group (persons aged 20–29), overestimation – in the older age group (persons aged 60 and older). The estimation of all persons aged at least ten was 3.8% smaller than the demographic population number (the reason was that all household members did not fill in the diaries).

Figure 2 **Change in population estimates after calibration**



The weights are adjusted with calibration, i.e. the weights  $W_i$  are adjusted with the suitably determined coefficient so that the population distribution estimated by the new weights would be in harmony with the known demographic data. The number of persons aged at least ten according to population statistics served as a basis for the calibration.

Inasmuch as the rate of answering the questionnaires depended on the gender- and age-specific distributions, the place of residence and the season, the following divisions were used in calibration to correct the bias:

- gender – males, females;
- age – 10–14, 15–19, 20–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, 65–69, 70–74, 75 and older;
- urbanisation stage – residence in an urban settlement (city, city without municipal status, town), residence in a rural settlement (small town, village);
- region – 16 divisions: Tallinn, Harju county without the city of Tallinn, the remaining 14 counties;
- period – the 2nd quarter of 2009 (spring), the 3rd quarter of 2009 (summer), the 4th quarter of 2009 (autumn), the 1st quarter of 2010 (winter).

The distribution of population in periods is conditional, but necessary in order to take into account the impact of the season on the response rate.

Technically, the calibration was done with the programme Bascula.

#### Weights of weekday- and weekend diaries

The final weights of the diaries were calculated based on the calibrated weights  $W_{cal,i}$ , which had been found for the persons who filled in the diaries. These weights had to be adjusted, because the number of working days and weekend days in the week is different.

The weights of working days were adjusted with the value  $w_{1,i} = 5/7$  and the weights of weekend days with the value  $w_{2,i} = 2/7$ . As the submission of diaries also differed by weekdays, the weights were also adjusted using the following ratio:

$$w_{NP} = \frac{1191799}{7} \cdot \frac{1}{N_{np}},$$

where  $N_{np}$  is the estimation of the population number of the weekday and 1,191,799 the number of persons aged at least ten according to population statistics as at 1 January 2009. The weights were calculated for all the completed diaries and they can be presented as the product of weights found previously:

$$w_{d,i} = w_{cal,i} \cdot w_{p,i} \cdot w_{NP}.$$

$w_{d,i}$  is the weight of the weekday  $d$  of the person  $i$ , i.e. each participant's diaries of different weekdays have a different weight.

## Weights of week diaries

Personal weights served as a basis for calculating the weights of week diaries. Calculations included those households where at least one week diary was completed and a weight was calculated for those persons who filled in the week diary (2,049 persons). The biases resulting from non-response and frame error were compensated for by post-stratification. The number of persons aged at least 15 in age groups 15–24, 25–34, 35–44, 45–54, 55–64 and 65 and older was used as additional information on the population.

### 2.3. Sampling error

Only a part of the population can be surveyed in the course of sample survey. Hence, the indicators calculated on the basis of sample data are always somewhat different from the real value of the estimated population parameter. This difference is called a random error or sampling error of estimation. It is not possible to measure this error exactly, but it can be estimated statistically considering the variability of the statistic used for parameter estimation in the case of the sample design used in the survey. In addition to the sample design, the sampling error depends on the sample size. A smaller sampling error can be expected with a larger sample size.

The second important group of quality indicators consists of the accuracy estimations of the parameters calculated on the basis of the survey. The accuracy estimations provided by Statistics Estonia are estimations of the sampling error i.e. these estimations do not reflect other possible error sources. Sampling error estimates are calculated for more important indicators.

Standard error is the main sampling error estimate. Standard error is a mathematical value that describes the variance of parameter estimations given on basis of the sample. As the sample is selected randomly, the parameter estimate is also a random variable and standard variance can be calculated for it. The smaller the variance, the more exact is the parameter estimation. The variance of the estimate depends on the sample size and sample design.

The reliability of results is indicated by the relative standard error or the variation coefficient CV, which is calculated using the formula

$$CV = \frac{sv(\hat{Y})}{\hat{Y}} \cdot 100\%,$$

where  $\hat{Y}$  is the estimate of the average of  $Y$  and  $sv(\hat{Y})$  is the standard error of the estimate.

The relative standard error shows the proportion of the standard error in the estimated value. As a rule, it is presented as a percentage. Relative standard error is independent of measuring units; it allows comparing different parameter estimations irrespective of measurement units. The relative standard error is an operative tool for receiving a quick overview of the accuracy of estimates.

The following tables present the estimates and relative standard errors of the average time use by the primary activity, economic status and gender. Estimations ( $N$ ) have been presented in minutes.

Table 3 **Average time use per day by primary activity and economic status (males and females total)**

| Primary activity / Economic status                | Total |       | Employed |       | Unemployed |       | Inactive |       |
|---------------------------------------------------|-------|-------|----------|-------|------------|-------|----------|-------|
|                                                   | N     | CV, % | N        | CV, % | N          | CV, % | N        | CV, % |
| Personal care                                     | 668   | 0.3   | 636      | 0.5   | 694        | 1.0   | 702      | 0.4   |
| ..sleep                                           | 533   | 0.4   | 507      | 0.5   | 552        | 1.2   | 559      | 0.5   |
| ..eating and drinking                             | 81    | 1.0   | 76       | 1.5   | 87         | 3.0   | 86       | 1.3   |
| ..other personal care                             | 54    | 1.3   | 52       | 1.8   | 55         | 4.7   | 56       | 1.8   |
| ..travel related to personal care                 | 0     | 19.7  | 0        | 21.0  | ..         | 49.3  | 0        | 36.4  |
| Paid work                                         | 177   | 2.3   | 345      | 1.6   | 44         | 20.3  | 6        | 23.3  |
| ..main job                                        | 154   | 2.3   | 302      | 1.7   | 28         | 26.9  | 5        | 24.8  |
| ..second job                                      | 1     | 36.1  | 1        | 36.6  | ..         | 70.3  | ..       | 74.5  |
| ..activities related to employer                  | 1     | 19.2  | 1        | 20.8  | 5          | 27.6  | ..       | 59.3  |
| ..lunch breaks                                    | 1     | 10.0  | 3        | 10.1  | ..         | 46.7  | ..       | 65.1  |
| ..employment-related travel                       | 20    | 3.1   | 39       | 2.7   | 7          | 21.3  | 1        | 25.4  |
| Study                                             | 33    | 5.5   | 7        | 18.4  | 15         | 28.0  | 67       | 5.9   |
| ..school/university                               | 27    | 5.8   | 5        | 22.7  | 6          | 36.9  | 57       | 6.1   |
| ..free time study                                 | 2     | 20.0  | 1        | 29.0  | ..         | 40.1  | 2        | 32.0  |
| ..travel related to study                         | 4     | 6.8   | 1        | 26.6  | ..         | 38.3  | 8        | 7.0   |
| Household and family care*                        | 206   | 1.4   | 176      | 2.0   | 245        | 5.1   | 233      | 2.0   |
| ..food management                                 | 53    | 1.7   | 44       | 2.3   | 53         | 6.4   | 65       | 2.6   |
| ..household upkeep                                | 36    | 2.8   | 29       | 4.0   | 48         | 14.7  | 42       | 3.2   |
| ..making and care for textiles                    | 11    | 5.1   | 9        | 6.9   | 12         | 23.1  | 14       | 7.1   |
| ..gardening and pet care                          | 20    | 4.4   | 15       | 6.6   | 20         | 13.1  | 27       | 5.9   |
| .. construction and repair                        | 10    | 7.2   | 9        | 8.9   | 22         | 16.7  | 8        | 11.5  |
| ..shopping and services                           | 24    | 2.5   | 24       | 3.4   | 23         | 7.7   | 24       | 3.8   |
| ..household management                            | 3     | 8.7   | 3        | 11.3  | 4          | 36.8  | 3        | 10.9  |
| ..childcare                                       | 21    | 6.9   | 20       | 8.7   | 24         | 16.2  | 21       | 10.5  |
| ..help to an adult family member                  | 1     | 17.7  | 1        | 26.3  | ..         | 50.2  | 1        | 24.3  |
| ..travel related to household and family care     | 21    | 2.8   | 18       | 3.7   | 27         | 9.7   | 22       | 4.3   |
| Volunteer work and meetings                       | 13    | 8.0   | 11       | 12.9  | 32         | 18.0  | 12       | 11.0  |
| .. organisational work                            | 0     | 23.5  | 0        | 30.1  | ..         | 70.6  | 1        | 34.2  |
| ..informal help to other households               | 9     | 9.5   | 6        | 15.3  | 25         | 20.2  | 8        | 13.3  |
| ..participatory activities                        | 2     | 21.1  | 2        | 29.3  | ..         | 56.7  | 2        | 24.2  |
| ..travel related to volunteer work and meetings   | 2     | 11.2  | 2        | 19.0  | 5          | 19.5  | 2        | 14.5  |
| Leisure time**                                    | 338   | 1.0   | 263      | 1.5   | 403        | 3.1   | 414      | 1.1   |
| ..social life                                     | 36    | 3.2   | 31       | 4.7   | 49         | 9.5   | 40       | 4.5   |
| ..entertainment and culture                       | 7     | 9.4   | 9        | 12.3  | 5          | 25.5  | 5        | 12.7  |
| ..resting – time out                              | 29    | 4.2   | 15       | 6.3   | 24         | 14.1  | 46       | 5.0   |
| ..physical exercise                               | 27    | 3.7   | 18       | 6.5   | 29         | 11.1  | 38       | 4.9   |
| .."productive" exercise                           | 3     | 11.2  | 2        | 14.8  | 8          | 28.3  | 2        | 17.8  |
| ..sports-related activities                       | 0     | 29.4  | 0        | 35.3  | ..         | 59.4  | 0        | 47.9  |
| ..hobbies                                         | 3     | 11.7  | 3        | 22.8  | 2          | 37.3  | 4        | 13.4  |
| ..computer-related activities                     | 36    | 4.1   | 30       | 6.1   | 62         | 10.0  | 38       | 6.2   |
| ..games (excl. computer games)                    | 9     | 7.2   | 5        | 14.1  | 13         | 19.8  | 14       | 9.1   |
| ..reading                                         | 27    | 3.5   | 21       | 4.6   | 21         | 11.9  | 36       | 4.8   |
| ..TV and video                                    | 134   | 1.5   | 106      | 2.2   | 157        | 5.0   | 163      | 2.0   |
| ..radio and music                                 | 4     | 8.2   | 2        | 17.7  | 4          | 24.4  | 7        | 9.4   |
| ..travel related to social life and entertainment | 22    | 3.8   | 22       | 6.2   | 27         | 9.6   | 21       | 4.7   |
| Unspecified time use                              | 4     | 12.6  | 3        | 19.5  | 7          | 33.2  | 5        | 18.5  |

\* Includes also unspecified time spent on household and family care.

\*\* Includes also unspecified time spent on leisure time.

Table 4 **Average time use of males per day by primary activity and economic status**

| Primary activity / Economic status                | Total |       | Employed |       | Unemployed |       | Inactive |       |
|---------------------------------------------------|-------|-------|----------|-------|------------|-------|----------|-------|
|                                                   | N     | CV, % | N        | CV, % | N          | CV, % | N        | CV, % |
| Personal care                                     | 666   | 0.5   | 637      | 0.7   | 686        | 1.3   | 703      | 0.6   |
| ..sleep                                           | 534   | 0.6   | 508      | 0.8   | 552        | 1.5   | 565      | 0.8   |
| ..eating and drinking                             | 83    | 1.4   | 79       | 2.1   | 86         | 3.6   | 87       | 1.9   |
| ..other personal care                             | 49    | 2.0   | 49       | 2.6   | 49         | 6.4   | 50       | 3.0   |
| ..travel related to personal care                 | 0     | 21.2  | 0        | 26.4  | ..         | 53.7  | 0        | 39.7  |
| Paid work                                         | 197   | 3.2   | 360      | 2.3   | 53         | 23.7  | 6        | 23.6  |
| ..main job                                        | 171   | 3.2   | 317      | 2.3   | 34         | 31.1  | 4        | 24.8  |
| ..second job                                      | ..    | 53.2  | ..       | 75.5  | ..         | 72.2  | ..       | 81.9  |
| ..activities related to employer                  | 1     | 27.3  | 0        | 27.3  | 6          | 34.1  | ..       | 99.8  |
| ..lunch breaks                                    | 2     | 13.1  | 3        | 13.4  | ..         | 48.0  | ..       | ..    |
| ..employment-related travel                       | 22    | 4.1   | 39       | 3.6   | 7          | 23.1  | 1        | 31.2  |
| Study                                             | 36    | 7.7   | 5        | 28.6  | 19         | 33.5  | 87       | 8.0   |
| ..school/university                               | 29    | 8.1   | 3        | 31.9  | ..         | 45.9  | 73       | 8.2   |
| ..free time study                                 | 2     | 30.8  | ..       | 52.8  | ..         | 46.0  | ..       | 54.4  |
| ..travel related to study                         | 5     | 9.9   | 1        | 43.7  | ..         | 47.2  | 11       | 9.8   |
| Household and family care*                        | 155   | 2.4   | 135      | 3.3   | 200        | 7.8   | 168      | 4.0   |
| ...food management                                | 24    | 4.3   | 21       | 5.9   | 28         | 10.2  | 29       | 7.4   |
| ..household upkeep                                | 32    | 5.7   | 23       | 8.3   | 48         | 22.3  | 41       | 6.3   |
| ..making and care for textiles                    | 1     | 16.4  | 1        | 21.9  | ..         | 31.6  | 2        | 29.1  |
| ..gardening and pet care                          | 17    | 6.4   | 13       | 9.7   | 17         | 18.0  | 23       | 9.3   |
| .. construction and repair                        | 19    | 7.0   | 16       | 9.2   | 34         | 16.6  | 19       | 12.0  |
| ..shopping and services                           | 21    | 4.1   | 20       | 5.8   | 18         | 10.3  | 22       | 6.7   |
| ..household management                            | 2     | 15.0  | 2        | 19.2  | 3          | 56.9  | 2        | 17.8  |
| ..childcare                                       | 11    | 9.9   | 16       | 10.8  | 13         | 28.1  | 2        | 37.9  |
| ..help to an adult family member                  | 0     | 30.6  | ..       | 51.2  | ..         | 51.6  | ..       | 47.6  |
| ..travel related to household and family care     | 19    | 4.2   | 17       | 5.5   | 22         | 12.6  | 22       | 7.4   |
| Volunteer work and meetings                       | 14    | 12.0  | 11       | 20.4  | 37         | 20.5  | 11       | 16.2  |
| .. organisational work                            | 1     | 32.0  | ..       | 37.9  | ..         | 99.8  | ..       | 50.3  |
| ..informal help to other households               | 10    | 14.2  | 6        | 24.9  | 29         | 22.7  | 8        | 19.5  |
| ..participatory activities                        | 1     | 30.3  | 1        | 44.2  | ..         | 51.3  | 1        | 41.1  |
| ..travel related to volunteer work and meetings   | 3     | 16.7  | 3        | 30.0  | 6          | 20.3  | 2        | 19.9  |
| Leisure time**                                    | 366   | 1.4   | 288      | 2.0   | 438        | 3.7   | 456      | 1.5   |
| ..social life                                     | 34    | 4.9   | 28       | 7.2   | 49         | 13.3  | 39       | 7.2   |
| ..entertainment and culture                       | 7     | 14.3  | 9        | 18.2  | ..         | 42.7  | 4        | 19.2  |
| ..resting – time out                              | 30    | 6.7   | 16       | 8.2   | 26         | 16.9  | 50       | 9.2   |
| ..physical exercise                               | 31    | 5.3   | 20       | 9.4   | 29         | 13.4  | 46       | 7.2   |
| .."productive" exercise                           | 4     | 13.1  | 4        | 17.6  | 10         | 30.2  | 3        | 21.9  |
| ..sports-related activities                       | 1     | 37.0  | ..       | 44.8  | ..         | 59.1  | 1        | 66.9  |
| ..hobbies                                         | 3     | 18.4  | 2        | 34.5  | ..         | 45.2  | 4        | 23.1  |
| ..computer-related activities                     | 49    | 5.5   | 41       | 8.2   | 70         | 12.4  | 54       | 8.7   |
| ..games (excl. computer games)                    | 14    | 9.6   | 6        | 20.7  | 17         | 21.6  | 24       | 12.0  |
| ..reading                                         | 24    | 5.5   | 18       | 7.6   | 20         | 16.2  | 34       | 8.1   |
| ..TV and video                                    | 142   | 2.1   | 117      | 2.9   | 176        | 5.7   | 166      | 3.2   |
| ..radio and music                                 | 5     | 11.6  | 2        | 20.4  | 6          | 26.0  | 9        | 14.9  |
| ..travel related to social life and entertainment | 24    | 5.6   | 24       | 9.1   | 27         | 11.9  | 22       | 6.8   |
| Unspecified time use                              | 6     | 16.2  | 4        | 26.9  | 7          | 35.7  | 8        | 24.1  |

\* Includes also unspecified time spent on household and family.

\*\* Includes also unspecified time spent on leisure time.

Table 5 **Average time use of females per day by primary activity and economic status**

| Primary activity / Economic status                | Total |       | Employed |       | Unemployed |       | Inactive |       |
|---------------------------------------------------|-------|-------|----------|-------|------------|-------|----------|-------|
|                                                   | N     | CV, % | N        | CV, % | N          | CV, % | N        | CV, % |
| Personal care                                     | 670   | 0.4   | 635      | 0.5   | 708        | 1.6   | 701      | 0.5   |
| ..sleep                                           | 532   | 0.4   | 506      | 0.6   | 553        | 2.1   | 555      | 0.6   |
| ..eating and drinking                             | 79    | 1.2   | 72       | 1.7   | 88         | 5.0   | 85       | 1.5   |
| ..other personal care                             | 58    | 1.5   | 56       | 2.1   | 66         | 5.9   | 60       | 2.1   |
| ..travel related to personal care                 | 0     | 26.8  | 0        | 31.9  | ..         | 99.1  | ..       | 41.8  |
| Paid work                                         | 161   | 3.1   | 330      | 2.2   | 27         | 37.0  | 7        | 32.5  |
| ..main job                                        | 140   | 3.2   | 287      | 2.3   | ..         | 51.5  | 5        | 34.5  |
| ..second job                                      | 1     | 38.9  | ..       | 41.2  | ..         | 99.1  | ..       | 99.9  |
| ..activities related to employer                  | 1     | 23.2  | 1        | 28.0  | ..         | 42.1  | ..       | 64.2  |
| ..lunch breaks                                    | 1     | 13.0  | 3        | 13.0  | ..         | 100.2 | ..       | 65.1  |
| ..employment-related travel                       | 19    | 4.7   | 38       | 4.2   | ..         | 42.2  | 1        | 32.6  |
| Study                                             | 30    | 7.7   | 8        | 23.7  | ..         | 36.8  | 55       | 8.3   |
| ..school/university                               | 25    | 8.0   | 6        | 30.0  | ..         | 47.1  | 46       | 8.4   |
| ..free time study                                 | 2     | 25.0  | 2        | 34.8  | ..         | 57.1  | 2        | 36.5  |
| ..travel related to study                         | 4     | 8.9   | 1        | 30.7  | ..         | 50.9  | 7        | 9.4   |
| Household and family care*                        | 248   | 1.6   | 213      | 2.3   | 326        | 5.5   | 274      | 2.2   |
| ...food management                                | 78    | 1.8   | 65       | 2.5   | 99         | 6.5   | 88       | 2.6   |
| ..household upkeep                                | 39    | 2.4   | 34       | 3.8   | 48         | 8.9   | 43       | 3.4   |
| ..making and care for textiles                    | 19    | 5.1   | 15       | 7.2   | 30         | 23.3  | 21       | 7.1   |
| ..gardening and pet care                          | 23    | 5.0   | 16       | 7.0   | 25         | 18.7  | 29       | 6.9   |
| .. construction and repair                        | 2     | 20.3  | 3        | 24.5  | ..         | 75.5  | 2        | 38.1  |
| ..shopping and services                           | 26    | 2.8   | 27       | 3.9   | 32         | 9.8   | 25       | 4.3   |
| ..household management                            | 3     | 8.6   | 3        | 13.1  | 4          | 27.5  | 3        | 12.1  |
| ..childcare                                       | 30    | 7.0   | 25       | 10.3  | 43         | 18.2  | 33       | 10.4  |
| ..help to an adult family member                  | 1     | 21.1  | 1        | 30.3  | ..         | 74.6  | 2        | 27.5  |
| ..travel related to household and family care     | 22    | 3.4   | 19       | 4.4   | 36         | 14.0  | 23       | 5.0   |
| Volunteer work and meetings                       | 13    | 9.3   | 11       | 14.8  | 23         | 31.5  | 13       | 12.7  |
| .. organisational work                            | 0     | 34.1  | ..       | 49.7  | ..         | 99.9  | ..       | 45.1  |
| ..informal help to other households               | 8     | 10.9  | 6        | 16.7  | 16         | 34.7  | 9        | 15.5  |
| ..participatory activities                        | 2     | 23.2  | 3        | 33.1  | ..         | 77.0  | 2        | 29.0  |
| ..travel related to volunteer work and meetings   | 2     | 12.8  | 2        | 20.4  | 4          | 45.3  | 2        | 16.6  |
| Leisure time**                                    | 316   | 1.2   | 241      | 1.9   | 340        | 5.0   | 388      | 1.3   |
| ..social life                                     | 37    | 3.7   | 33       | 5.2   | 48         | 11.1  | 40       | 5.3   |
| ..entertainment and culture                       | 7     | 10.3  | 8        | 15.2  | 8          | 28.0  | 7        | 14.8  |
| ..resting – time out                              | 28    | 4.3   | 14       | 8.4   | 20         | 23.9  | 43       | 4.8   |
| ..physical exercise                               | 25    | 4.8   | 17       | 7.7   | 28         | 19.2  | 32       | 6.3   |
| .. "productive" exercise                          | 1     | 17.9  | 1        | 24.7  | ..         | 47.8  | 1        | 29.0  |
| ..sports-related activities                       | 0     | 29.3  | ..       | 48.9  | ..         | ..    | ..       | 36.4  |
| ..hobbies                                         | 4     | 14.4  | 3        | 29.1  | ..         | 49.4  | 4        | 14.6  |
| ..computer-related activities                     | 25    | 5.3   | 20       | 6.5   | 47         | 15.9  | 28       | 7.7   |
| ..games (excl. computer games)                    | 6     | 8.0   | 3        | 11.4  | 6          | 34.2  | 8        | 10.4  |
| ..reading                                         | 30    | 3.9   | 23       | 5.3   | 23         | 17.5  | 37       | 5.4   |
| ..TV and video                                    | 128   | 1.9   | 96       | 2.8   | 122        | 8.5   | 161      | 2.4   |
| ..radio and music                                 | 4     | 10.7  | 1        | 28.9  | ..         | 38.4  | 6        | 11.4  |
| ..travel related to social life and entertainment | 20    | 4.6   | 21       | 7.4   | 27         | 15.7  | 20       | 6.2   |
| Unspecified time use                              | 3     | 19.0  | 2        | 23.1  | ..         | 66.0  | 3        | 27.2  |

\* Includes also unspecified time spent on household and family.

\*\* Includes also unspecified time spent on leisure time.

## 2.4. Restrictions on the publication of estimates

Only reliable estimates are published in the database of Statistics Estonia. There are two dots in the tables in the place of unreliable estimates. An estimate is deemed reliable, when it is based on at least 20 respondents. In the case of 20 respondents, the relative standard error is approximately 30–40%.

Due to rounding, the sum in the tables does not always equal with the summary estimate. The maximum difference allowed is a few units of the last couple of decimal places.

## 2.5. Response rate

According to the information received in the course of the survey, the households in the sample have been divided into three groups: responded, non-response and frame error. Taking into account the sizes of the groups, the primary quality indicator of the survey – the response rate – is calculated. The response rate shows the share of respondents in the sample without frame error and is calculated using the following formula:

$$\frac{v}{n - l} \cdot 100\%$$

where  $v$  is the number of responded persons,  $n$  the preliminary sample size and  $l$  the frame error.

A frame error occurs when a person who is not a part of the general population is selected for the sample. In the Time Use Survey, a frame error is a person's death, long-term stay in a foreign country or in an institution. Out of the 7,225 sample persons of the Time Use Survey, 314 persons or 4.3% of the sample had to be classified as a frame error. The reason with the largest share was long-term stay in a foreign country – 2.8% of the sample or 65% of the frame error. The distribution of all frame errors in the survey is presented in Table 6.

Table 6 **Frame error**

|                                                                                                       | Number     | Share in the sample, % | Share in the frame error, % |
|-------------------------------------------------------------------------------------------------------|------------|------------------------|-----------------------------|
| Respondent is dead                                                                                    | 70         | 1.0                    | 22.3                        |
| Respondent participates in the survey through another household member                                | 2          | 0.0                    | 0.6                         |
| Respondent has been committed to an institution (institutional household, e.g., nursing home, prison) | 38         | 0.5                    | 12.1                        |
| Respondent is presently staying in a foreign country for a period of one year or longer               | 204        | 2.8                    | 65.0                        |
| <b>Total</b>                                                                                          | <b>314</b> | <b>4.3</b>             | <b>100.0</b>                |

The size of the sample without frame error was 6,911 households, of which 3,131 completed the Household Questionnaire and were taken into account as responded households. Thus, the total response rate of the Time Use Survey was 45.3%. Response rates by counties are presented in Table 7. Pärnu county had the highest response rate, Harju county was the county with the lowest response rate, where the submission of diaries was small not only because of the low response rate of the city of Tallinn (28.9%), but also due to the low response rate elsewhere in Harju county (35.8); the response rate of Harju county with Tallinn was 30.6%.

Table 7 **Number of respondents and response rate by counties**

| County        | Sample size without frame error | Number of respondents | Response rate, % |
|---------------|---------------------------------|-----------------------|------------------|
| Harju         | 2329                            | 713                   | 30.6             |
| incl. Tallinn | 1736                            | 501                   | 28.9             |
| Hiiu          | 216                             | 114                   | 52.8             |
| Ida-Viru      | 706                             | 318                   | 45.0             |
| Jõgeva        | 272                             | 162                   | 59.6             |
| Järva         | 263                             | 159                   | 60.5             |
| Lääne         | 211                             | 113                   | 53.6             |
| Lääne-Viru    | 262                             | 115                   | 43.9             |
| Põlva         | 235                             | 143                   | 60.9             |
| Pärnu         | 371                             | 251                   | 67.7             |
| Rapla         | 272                             | 159                   | 58.5             |
| Saare         | 269                             | 161                   | 59.9             |
| Tartu         | 577                             | 256                   | 44.4             |
| Valga         | 235                             | 147                   | 62.6             |
| Viljandi      | 403                             | 198                   | 49.1             |
| Võru          | 290                             | 122                   | 42.1             |
| <b>Total</b>  | <b>6911</b>                     | <b>3131</b>           | <b>45.3</b>      |



## Non-response

The part of the sample that is left out of the survey is classified as a non-response. In the Time Use Survey, like in other surveys, the main reasons for being left out of the survey were lack of contact and refusal to participate in the survey. Incidents where the sample person did not reside at the address entered in the register, and it was not possible to determine the actual address with the help of local sources (neighbours, local government, telephone book, etc.), were considered as a non-response. Non-response also included the portion of the sample in the case of which the person's address had been clarified, but the person was left out of the survey for other reasons – some people could not be reached, others refused to respond, were ill, unable to answer, etc.

Table 8 presents the reasons for non-response and their share in the Time Use Survey.

Table 8 Reason for non-response

|                                                                                                                           | Number      | Share in the non-response. % |
|---------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------|
| <b>Non-contact</b>                                                                                                        | <b>1927</b> | <b>51.0</b>                  |
| the sample person does not reside at the given address                                                                    | 455         | 12.0                         |
| the sample person has moved                                                                                               | 141         | 3.7                          |
| the address in the sample could not be found                                                                              | 21          | 0.6                          |
| the sample person is temporarily residing elsewhere                                                                       | 93          | 2.5                          |
| the sample person is not residing in his/her place of residence during the survey period                                  | 97          | 2.6                          |
| having entered the house, the interviewer is unable to contact the person to be interviewed because he/she is not at home | 926         | 24.5                         |
| unable to enter house/stairwell                                                                                           | 190         | 5.0                          |
| other reason why the person to be interviewed could not be found                                                          | 4           | 0.1                          |
| <b>Refusal</b>                                                                                                            | <b>1289</b> | <b>34.1</b>                  |
| refusal (categorically) to answer                                                                                         | 848         | 22.4                         |
| not willing to answer for free                                                                                            |             |                              |
| refusal due to lack of time                                                                                               | 329         | 8.7                          |
| disappointment in the state, statistics or the benefit of surveys                                                         | 23          | 0.6                          |
| refusal due to poor economic situation                                                                                    | 5           | 0.1                          |
| lack of trust, suspicion regarding the ability to ensure the confidentiality of data                                      | 44          | 1.2                          |
| the survey is too complicated / needs additional work                                                                     | 5           | 0.1                          |
| the respondent has already participated in surveys                                                                        | 24          | 0.6                          |
| the respondent leaves for the survey period (holidays, travelling, etc.)                                                  | 11          | 0.3                          |
| <b>Other reasons</b>                                                                                                      | <b>564</b>  | <b>14.9</b>                  |
| not responding due to exceptional circumstances in the household                                                          | 88          | 2.3                          |
| the respondent is unable to answer                                                                                        | 174         | 4.6                          |
| was not present at the agreed time and place or avoided contact                                                           | 132         | 3.5                          |
| other                                                                                                                     | 170         | 4.5                          |
| <b>Total</b>                                                                                                              | <b>3780</b> | <b>100.0</b>                 |

## Filling in the survey materials

In addition to the common Household Questionnaire, the persons participating in the Time Use Survey also filled in a separate Personal Questionnaire and working day, weekend day and week diary. The Personal Questionnaire and diaries were filled in according to age, the week diary according to working in the reference week. Section 2.2 presents the exact conditions regarding the respondent's age and working.

## Completing the Personal Questionnaire

3,131 households who completed the Household Questionnaire included 7,313 persons aged ten and older. 6,968 persons or 95.3% of all persons eligible to answer completed the Personal Questionnaire. In 2,912 households, all eligible household members completed the Personal Questionnaire. In 219 households, some household members did not respond to the Personal Questionnaire. Reasons for non-response and their distribution are presented in Table 9.

Table 9 **Reasons for non-response to the Personal Questionnaire**

| Reason                                                      | Number     | Share, %     |
|-------------------------------------------------------------|------------|--------------|
| The sample person is temporarily residing elsewhere         | 70         | 20.3         |
| Non-contact                                                 | 26         | 7.5          |
| Refusal                                                     | 230        | 66.7         |
| The sample person is unable to answer, sick, avoids contact | 19         | 5.5          |
| <b>Total</b>                                                | <b>345</b> | <b>100.0</b> |

#### Completing the working day and weekend diaries

Of all the 7,313 persons in the age group eligible to be surveyed, 5,767 persons (78.9%) took diaries for completing. However, only those who had completed the Personal Questionnaire could complete the diaries. Hence, the share of the persons who completed the diaries among all respondents was bigger – 82.8% of 6,968. The diaries could not be handed out to 1,201 (17.2%) eligible persons as they were temporarily not residing in their place of residence during the survey or refused to complete any diaries (incl. the week diary).

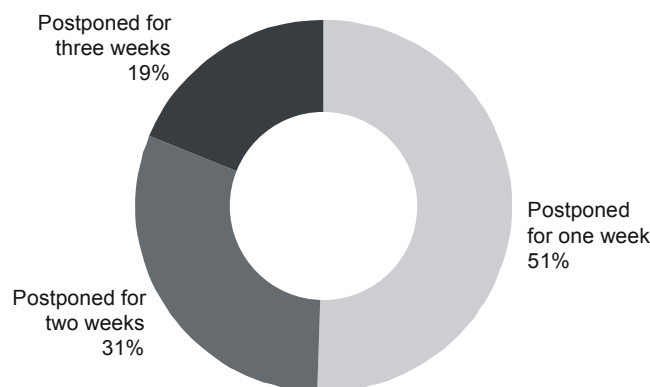
Out of the 5,767 persons who received the diaries for completion, 4,941 (85.7%) completed both the working day and the weekend diary. 64 persons (1.1%) completed only one diary and 762 (13.2%) returned uncompleted diaries.

In total, 2,425 households (77.5% of the 3,131 households who completed the Household Questionnaire) completed the diaries; among them, all eligible household members of 2,372 households (75.8%) completed both the working day and weekend diaries.

#### Adhering to the terms of completing the diaries

Each household in the sample was designated an exact day for filling in the diaries, but the household could postpone them up to three weeks. 417 (17.2%) of 2,425 households who completed the diaries used the option of postponing. 1,663 diaries were filled in on postponed days, which accounts for 16.7% of the completed diaries. Figure 3 shows the distribution of diaries that were filled in on postponed days.

Figure 3 **Postponing the time of filling in the diary**

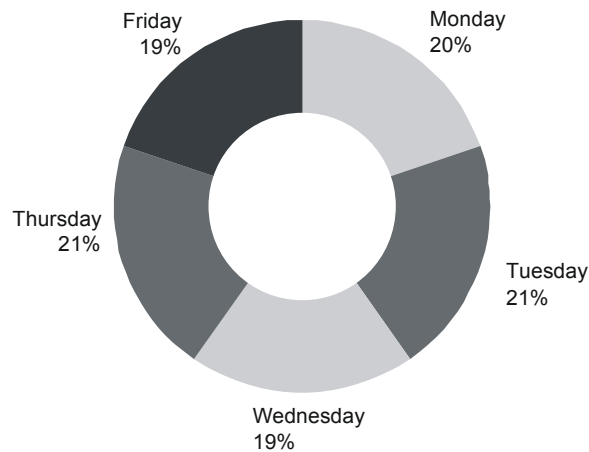


According to the rules of the Time Use Survey, the interviewer wrote (by hand) the dates for filling in the diary on the diaries. In some cases, the dates were wrong and the respondent filled in the diaries on two working days or two weekend days. This problem mostly occurred when the calculation of the postponed date of filling in the diary was incorrect. In some cases, these diaries were not taken into account, but at the end of the survey these diaries were still kept as there were few completed diaries. When estimating the weights of the diaries, the actual day (of the week) of filling in the diary was taken into account in cases like these as well.

Postponing the day of filling in the diaries caused some problems at the end of the survey. The households that were in the sample during the last weeks of the survey were not allowed to postpone the completion of diaries, but in spite of that some diaries were completed after the end of the survey period. These diaries were retained, but while calculating the weights, they were taken into account as the diaries of the same weekday of the first and second survey week.

Figure 4 shows the distribution of the submitted diaries between working days.

Figure 4 **Filling in the diaries on working days**

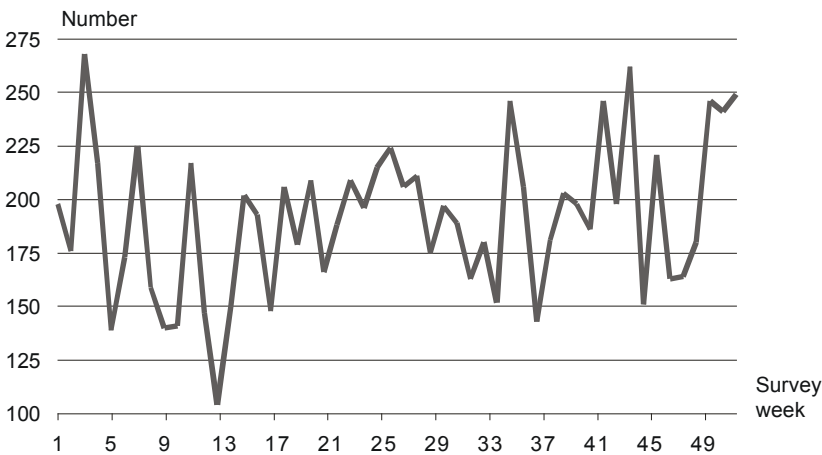


Most working day diaries were filled in on Tuesdays and Thursdays – 1,023. The fewest number of diaries was filled in on Wednesdays – 968. As for weekend diaries, 2,470 (49.7%) were filled in on Saturdays and 2,495 (50.3%) on Sundays.

Figure 5 presents the submission of working day and weekend diaries on all 52 survey weeks. The submission of diaries varied most during the first quarter of the survey (from April to June). The weeks with both the largest and the smallest number of diaries submitted fall in this period. The number of submitted diaries was the smallest in the 13th survey week, which is a week of low response rate in other surveys as well since it is the period following the Midsummer Day. The number of submitted diaries was the largest in the third survey week.

The largest number of diaries was submitted in the last quarter of the survey.

Figure 5 **Completion of diaries in reference weeks**



**Filling in the week diaries**

The week diaries were filled in by persons aged at least 15, who had a job on the week preceding the completion of the Personal Questionnaire, and who worked at least one hour in the survey week. For filling in the week diary, seven days were calculated for the survey week starting from the day of completing the first diary. Week diaries were submitted by 2,049 people, i.e. by 69% of the persons who had the possibility to complete the week diary. Among non-respondents, about one-half refused to complete the diary before the survey period and one-half submitted uncompleted diaries.

**2.6. Coefficients**

**Algorithms**

Since a day consists of 24 hours and it is important to know the average time in minutes spent on the activities of one day, the time spent must be estimated on the basis of uniform

calculations, so that the comparability between different years and surveys would be guaranteed. For this purpose, uniform calculation rules were created for database tables in 2009–2010. The table below presents the number of a database table and the algorithm used in the table.

Table 10 **Algorithms of Time Use Survey tables 2009–2010**

| Table heading | Algorithm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AK011         | Time spent on the main activity (in minutes) in the respective gender group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| AK012         | Time spent on the main activity (in minutes) in the respective gender group and on the respective weekday is multiplied by the expansion factor of this group ( <i>day-weight</i> ) and divided by the number of persons of the same group and weekday, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                               |
| AK022         | Time spent on the main activity (in minutes) in the respective gender- and age group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| AK032         | Time spent on the main activity (in minutes) in the respective gender- and economic status group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| AK033         | Time spent on the main activity (in minutes) in the respective gender- and labour group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| AK042         | Time spent on the main activity (in minutes) in the respective gender- and education group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| AK043         | Time spent on the main activity (in minutes) in the respective gender- and health status group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| AK052         | Time spent on the main activity (in minutes) in the respective gender- and place of residence group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| AK062         | Time spent on the main activity (in minutes) in the respective gender- and marital status group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| AK073         | Time spent on the main activity (in minutes) in the respective gender- and household type group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| AK074         | Time spent on the main activity (in minutes) in the respective gender- and age group of persons aged 20–64, which has been formed based on the youngest household member, is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                             |
| AK08          | Column 1. Time spent on the main activity (in minutes) is multiplied by the expansion factor <i>day-weight</i> and the result is divided by the number of persons, also calculated with the help of the expansion factor <i>day-weight</i> .<br>Column 2. The number of persons performing the main activity is divided by the number of all persons, which has been calculated using the expansion factor <i>day-weight</i> , and is multiplied by 100 (to find the percentage).<br>Column 3. Time spent on the main activity (in minutes) is multiplied by the expansion factor <i>day-weight</i> and the result is divided by the number of persons performing this main activity, which has also been calculated with the help of the expansion factor <i>day-weight</i> . |
| AK091         | The number of persons (expansion factor <i>day-weight</i> ) performing the activity on concrete weekday(s) in a concrete period (if there was at least one 10-minute period during the hour) is divided by the number of all persons (also calculated using the expansion factor <i>day-weight</i> ) and multiplied by 100 (to find the percentage).                                                                                                                                                                                                                                                                                                                                                                                                                           |
| AK131         | Time spent alone and with other persons (in minutes) in the respective gender group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|       |                                                                                                                                                                                                                                                                                                                                                                |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AK132 | Time spent alone and with other persons (in minutes) in the respective gender group on weekday(s) is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons (who responded on the concrete weekday(s)) in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .          |
| AK142 | Time spent alone and with other persons (in minutes) in the respective gender- and age group on weekday(s) is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons (who responded on the concrete weekday(s)) in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> . |
| AK152 | Time spent alone and with other persons (in minutes) by main activities in the respective gender group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                |
| AK161 | Time spent (in minutes) by location and in the respective gender group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                                |
| AK162 | Time spent (in minutes) by location and in the respective gender group on weekday(s) is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons (who responded on the concrete weekday(s)) in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                       |
| AK172 | Time spent (in minutes) by location in the respective gender- and age group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons who responded in this age group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                             |
| AK182 | Time spent (in minutes) by main activities in the respective gender group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                             |
| AK191 | The number of persons who were in a certain place on a concrete weekday(s) in a concrete period (if there was at least one 10-minute period during the hour) is divided by the number of all persons and multiplied by 100 (to find the percentage). The number of people has also been calculated with the help of the expansion factor <i>day-weight</i> .   |
| AK20  | Time spent (in minutes) by secondary activities in the respective gender group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                                        |
| AK21  | Time spent (in minutes) by secondary activities in the respective gender- and age group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons (who responded on concrete weekday(s)) in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                        |
| AK22  | Time spent (in minutes) by secondary activities in the respective gender- and age group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons who responded in this gender group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                              |
| AK23  | Time spent (in minutes) by secondary and main activities in the respective gender group is multiplied by the expansion factor <i>day-weight</i> and divided by the number of persons in the same group, which has also been calculated with the help of the expansion factor <i>day-weight</i> .                                                               |

## 2.7. Items of non-response

The interviewer presents the respondent with all of the interview questions, but it may sometimes happen that the respondent does not wish to answer a question or is unable to provide an answer. In such a case, the interviewer shall assist the respondent with explanations and additional questions, but the respondent's final answer may still be "I do not know", "I cannot say" or "I refuse to respond" and the interviewer must accept such answers. Typically, the possible responses of "I do not know" or "I refuse to respond" are not visible to the respondent, although the program in the laptop used by the interviewer allows for responses of "Does not know" or "Refuses to respond" to be marked. Sometimes, however, there are cases where, among the other possible responses, the answers "I do not know", "I cannot say" or "I refuse to respond" are also visible. If the respondent's final answer remains one of these, then during later analysis it shall be handled as leaving the question unanswered and, if necessary, the answers shall be imputed.

In the first part of the survey, which concerned employment, there were 40 questions (characteristics). Of those, as many as 19 questions prompted the answer "I do not know" or were left unanswered at least once. The employment section also contained several questions about income, 20% of the questions that were left unanswered here concerned income. In the case of two such questions, there was an option to refuse answering or to answer "I do not know", and this option was used a lot. The high rate of unanswered questions was due to the questions where the variants "I do not know" or "I refuse to

respond" were visible or read out to the respondent. With regard to monthly earnings, the respondents refused to answer in 54 cases and gave an answer of "I do not know" in 56 cases. In 37 cases, the respondents did not know their gross wages (salaries) or refused to disclose them, and the same applied for the net wages in as many as 211 questionnaires. In 38 questionnaires, the respondents did not know their income range or refused to disclose it. The questionnaires where respondents answered "I do not know" to questions regarding both the earnings and their range, or refused to answer numbered 69. It may hence be concluded that, if it was previously possible to refuse or answer "I do not know", respondents did it afterwards as well and it was one of the main reasons for leaving the questions unanswered in this part of the questionnaire. The other reason might be that asking about income is perceived as something personal and this in itself causes refusing and answering "I do not know".

The leisure time module of the Personal Questionnaire included 100 questions (characteristics). Of them, 35% or 35 questions were given the answer "I do not know" or "I refuse to respond" at least once. In this part, these answers were not offered to the respondent. The program used in the laptop interview enables the interviewer to record "I do not know" or "Refused" if needed, but they are not offered to the respondent as possible options. The respondents were more prone to answer "I do not know" in the case of multiple choice questions about how many times during the last 12 months the respondent has visited cultural events (theatre, cinema, concerts, etc.) or other places of spending leisure time (restaurant, nightclub, excursion, etc.). The possible answers were "Never", "1–3 times", "4–6 times", "7–12 times" and "More than 12 times". The answer of "I do not know" was given at least once in the case of 11 questionnaires. In four occasions, the respondents could not answer what kind of literature and how often they read, and in 26 occasions, the respondents could not say, according to pre-determined ranges, how many books could there have been at their childhood home.

On the whole, 609 Personal Questionnaires or 9% of the questionnaires included at least one unanswered question; the respondents mostly (in 80% of the questionnaires) left one question unanswered. The high rate of non-response resulted first and foremost from the questions which offered the option "I do not know" or "I refuse to respond" and where it was also read out to the respondent. For example, in the section regarding employment, there was a question about income where the respondent could refuse to respond and this opportunity was used in 358 questionnaires. The questionnaires where the next question about the income range was unanswered numbered 147. Consequently, if there once was the possibility to refuse to respond, it would also be used later. In the section regarding leisure time, there were no options to choose "I do not know" or "I refuse to respond" and the number of unanswered questions was significantly smaller – at least one question was left unanswered in only 75 questionnaires. Among Personal Questionnaires, the employment and leisure time modules included the largest number of unanswered questions.

Household Questionnaires included a question on the money at the disposal of the household and here, too, the respondent could answer "I do not know" or refuse to respond. This option was used in 365 questionnaires. If the respondent did not know the exact sum refused to disclose it, the next question was in which range the sum was. In this case, on 50 occasions the answer was "I do not know" or "I refuse to respond". On the whole, at least one question had been answered "I do not know" or "I refuse to respond" in 413 Household Questionnaires. The answer "I do not know" was rather given also to questions about the year of construction of the dwelling and the mileage of vehicles, as these are the data that the respondents need not know.

## 2.8. Measurement error

Several factors may cause measurement errors or errors made during the interview. There are four sources of measurement errors: respondent, interviewer, interview material and way of measurement. An overview has been provided of the interview material used in the Time Use Survey, interviewers' training, time spent on the interview, way of interview and data cleansing.

### Survey materials

The survey materials comprised two questionnaires – the Household Questionnaire and the Personal Questionnaire - and, in addition, a set of three diaries: one for recording activities on working days, another one for activities on weekends, and a third one (week diary) for recording working hours.

The Household Questionnaire consisted of the following blocks:

- PART YA. General data of the household and its members
- PART YB. Relations in the household
- PART YC. Demographic data
- PART B. Childcare
- PART YD. Living conditions
- PART C. Income

When filling out the Household Questionnaire, the most competent household member is always preferred for the interview, who would also know the general data of other household members. All question blocks starting with Y are also used in other social surveys, they contain unified characteristics and have thus been repeatedly tested and are considered relevant. Questions on childcare have been taken from the Estonian Social Survey; the questions on income are based on questions of unified background characteristics from other surveys, excl. some questions on agriculture.

Parts of the Personal Questionnaire:

- PART B. Working in the previous week
- PART C. Ancillary activities
- PART D. Working outside working hours
- PART F. Socio-economic status
- PART YE. Education
- PART YG. Health of the person
- PART J. Participation in non-profit associations (module)
- PART H. Module of voluntary work
- PART K. Module of using transport
- PART I. Module of leisure time

The Personal Questionnaire also included some parts of background characteristics. Pursuant to Eurostat requirements, the questions on working must be asked relative to the previous week. Estonian Labour Force Survey also uses the same concept of working, which is the reason why questions concerning working, ancillary activities and working outside working hours were taken from there. The module of transport was at the end of the General Household Survey of 2008 and it has also been tested and revised according to the interviewers' remarks about the inaccuracies before it was included in the Time Use Survey. Only modules of participation in non-profit associations and of voluntary work were completely new. It could be presumed here that the definitions and understanding of non-profit associations and voluntary work can be confusing, i.e. whether the respondent thinks himself/herself belonging to one or other organisation or considers one or another activity voluntary work. Thus it was essential to add the definitions with examples at the beginning of the corresponding block of the questionnaire. The interviewer had to read out the definition to the respondent and illustrate it with examples.

The module of leisure time was also in the previous, 1999–2000 survey, but now it was changed in order to get as much information as possible on people's leisure time activities. To simplify following the questions, a card book with multiple choice answers was introduced as auxiliary material.

Diaries are the most essential instruments in the Time Use Survey. It is a common truth that surveys based on diaries are methodologically the most difficult, as the diary is filled in by the respondent and the role of the interviewer is not decisive both in terms of retrieving the diary and filling it in accurately. The survey was also complicated due to the fact that household members as young as ten years of age had to fill in the personal diary and be interviewed. There were three diaries in the set: diaries 1 and 2 were filled in on prescribed dates and in a chronological order, one on a working day and the other on a weekend day. The third diary, week diary, was filled in over seven days starting from the day of filling in the first diary, and it was done by all household members who had worked in the reference week.

All household members aged at least ten had to fill in the diaries (as at 01.01.2009, i.e. all persons born in 1998 or earlier). Week diaries were filled in by respondents aged 15 or older (as at 01.01.2009, i.e. all persons born in 1993 or earlier), who had worked for at least one day during the reference week.

#### **Pilot survey**

In autumn 2008, before the main survey, a pilot survey was conducted in order to test the suitability of the questionnaires, diaries, data collection methodology and arrangement, and of the interviewers' training. Six interviewers were included in the pilot survey, both Estonian- and Russian-speaking areas, and urban and rural areas were represented.

#### **Methodology**

The survey had a quota sample; it was planned to interview 200 households in the course of fieldwork. The survey was conducted in six regions, the sample size in each region and age group (quotas) was fixed (Table 1, p. 7 ). A sample with the data of 500 persons was ordered from the Population Register for the survey. Persons who had been previously included in the surveys of Statistics Estonia (according to the personal code and address) were removed from the sample. A sample with the size of 419 persons was prepared for fieldwork. The sample was divided into age groups and if the quota was not filled, the interviewer had the permission to interview a so-called replacement household from another age group. Out of the expected 200 questionnaires, 18 were missing.

#### **Results of the pilot survey**

A total of 298 households were contacted and 182 households were interviewed; thus, the response rate was 61.1%. The data of 121 persons from the fieldwork sample remained unused. By regions, the response rate was the highest in Tamsalu small town in Lääne Viru county and the lowest in rural regions of Põlva and Tartu counties. The response activity was bigger regarding households with older persons in the sample.

More significant reasons for non-response were a wrong address (reasons 2–4, 13% in total), refusal or indirect refusal to answer (reasons 8–13, 15% in total), and the respondent was not at home (reasons 6–7, 7.3% in total).

In the case of persons aged 18–34, the most frequent cause for non-response was a changed place of residence (19.2%), but non-response due to moving to foreign countries was also significant (6.4%).

Categorical refusal as a cause for non-response accounted for an equally significant share in all age groups (reason 8, 8.3–9%); this was also the most frequent reason for non-response among households with sample persons aged over 35.

182 households responding to the Household Questionnaire included a total of 408 persons, of whom 393 (96.3%) also filled in the Personal Questionnaire. 301 persons (73.8%) out of 408 persons filled in the working day and weekend diaries. Only 165 persons filled in the week diaries, i.e. 43.4% of the 380 persons aged 15 and older.

Out of the 393 persons who had filled in the Personal Questionnaire 92 persons (63% males, 37% females) did not complete the working day and weekend diaries. 22 males and 15 females immediately refused to fill in the diaries. 55 persons (36 males and 19 females) took diaries for completing but at the end of the survey it came out that they were not completed (due to lack of time or the complexity of the task; the agreement was cancelled; people changed their mind). Not complying with the agreement was the most frequent cause for not completing the diaries among both men and women.

#### **Focus group**

After the pilot survey, a focus group came together in order to find out what the reactions to the survey were. The interviewers were also asked about the smoothness of the survey (if it was easy/difficult, understandable both for the interviewers and respondents; what the main problems were).

Thanks to the focus group, it was possible to change the questionnaires and diaries before the main survey, to correct and supplement them in order to organise the interview better and to get more reliable results.

According to the interviewers, the respondents' attitudes towards the survey were varied as usual. But it was difficult to instruct how to fill in the diaries. Filling in the diaries seemed particularly complicated to elderly people (they did not know what to write if the whole day had been spent at home). Children were also experiencing difficulties with completing the diaries; parents usually took the task upon themselves. There were still also families where children liked to fill in the diaries.



The interviewers stated that they had to constantly deal with the survey, as they had to check if the respondents start filling out the diaries, and later it had to be checked whether they were filled in correctly.

According to the data received from the focus group, the questionnaire was edited (just the module of non-profit associations) – it was made shorter and more concrete. The questions on the comings and goings in the transport module were also revised. Examples regarding the days of persons of different ages were added to diaries.

The focus group of the coders also gathered after the end of the pilot survey. Its aim was:

- 1) to determine the problems that had arisen during the coding process, and to give recommendations;
  - 1.1) to find out if there are problems with classifications, if there are activities that cannot be put under any classifications;
  - 1.2) to find out the activities the coding of which lacks information and for which respondents give too generic descriptions;
- 2) to determine the problems that occurred while using the input programme, and to give recommendations.

There were no problems with classifications. Some errors in the input programme (forwarding the questions at the end of the diary, time entries) were corrected already during the pilot survey.

#### **Interviewers' training**

The training of the Time Use Survey was conducted on 9–12.03.2009 in the Training Centre of the Ministry of Finance.

47 interviewers participated in the training; they were divided into four groups. Two groups were trained on one day and two groups on the other. The training was conducted by the survey manager and an analyst.

#### **Aims of the training**

- To introduce the Time Use Survey and the completion of the questionnaire to the interviewers.
- Train the interviewers to guide the respondents and teach them to fill in the diaries correctly, as they are the most important materials in the survey.

#### **Parts of the training**

- Introduction of the survey
- Sample
- Overview of interviewing
- Overview of the Time Use Survey questionnaires
- Overview of diaries
- Practical work with diaries
- Practical work and minutes

The emphasis of the training was laid on practical work. First the survey, then its methodology and the structure of the questionnaires were introduced.

It was somewhat difficult to teach how to fill in the diaries as it was new for everyone. However, the interviewers managed to find mistakes, correct them and guide the respondents to fill in the diaries more precisely.

Each interviewer interviewed the employees of Statistics Estonia as respondents. The interviews went smoothly, no major problems occurred, but some input errors could be traced. Interviewers read out all the questions as prescribed. As the legend was not thought through beforehand, interviewers discovered some inaccuracies there, e.g. checked the life history of the respondent and found it not in accordance with what the respondent had told. In this case, the interviewers always asked for a clarification if anything was even slightly confusing. This indicated that the interviewers were experienced, did not let errors to slip in and checked what they wrote in the questionnaires.

The amount of the training material was rated as appropriate by the participants in the training. More than one-half (52%) of the interviewers thought that practical tasks were

somewhat useful, whereas less than one-half (43%) thought that practical tasks were very useful.

On a five-point scale, the efficiency factor of the training was rated, on average, with the mark 3.96. Almost one-half (48%) of the respondents considered the training rather necessary in their everyday work, and 26% considered it very necessary.

On the whole, the interviewers were satisfied with the training. They found the survey interesting and original. The trainers were also satisfied since the training went smoothly.

#### **Interview method**

In the survey, face-to-face interviews with the help of laptops (CAPI – Computer-Assisted Personal Interview) were used. The diaries were filled in by the respondents themselves and later the data entry assistants and coders entered the data in the program BLAISE and coded them based on the activity codes.

In Statistics Estonia, laptops have been used for face-to-face interviews since 2005. In exceptional cases (for security reasons, due to a technical fault or other reasons), the interviewers are allowed to use paper questionnaires. These general rules applied also to the Time Use Survey. In the case of Household Questionnaires, 97.3% interviews were conducted using a laptop, paper questionnaires were used only with regard to 2.6% of interviews. In the case of Personal Questionnaires, the respective figures were 96.7% and 3.3%.

#### **Diaries**

Diaries are the most essential instruments in the Time Use Survey. The set consisted of three diaries: diaries 1 and 2 had to be filled out in a chronological order on prescribed dates and the week diary during seven days starting from the day of filling in the first diary.

All household members aged at least ten (as at 01.01.2009, i.e. all persons born in 1998 or earlier) had to fill in the diaries. Week diaries had to be filled in by respondents aged 15 or older (as at 01.01.2009, i.e. all persons born in 1993 or earlier), who had worked at least one day during the reference week.

One working day (from Monday to Friday) and one day off (Saturday or Sunday) had been randomly determined for each household. All household members had to fill in the diary specifically about the days prescribed. They were not allowed to change these days. If a household or its member could not fill in the diary on the prescribed day, it was allowed to postpone filling in the diary for three weeks. If a household member was not at home on the day he/she was supposed to fill in the diary, it had to be determined if the missing household member would return home in three weeks. If yes, then the days of filling in the diaries of the whole household were postponed. If not, then the household member in question did not fill in the diary and he/she being absent was considered accepted absence.

The interviewer recorded the day for which the respondent had to fill in the diary in the interviewer's section under "Prescribed day". On this day, the interviewer definitely reminded the household (e.g. by phone) to start filling in the diary. One day after filling in the diary, the interviewer had to contact the household again and ask if all household members had filled in the diary. If they had not, the interviewer reminded them to fill in the diary and if the respondent agreed, he/she filled in the diary later and definitely for the day prescribed. If it came out two or three days later that a household member had not filled in the diary, he/she was given the same day as other household members, but a week later.

It was very important that all household members would fill in the diary for the same day of the week.

#### **Structure of diaries**

The first page of the diary contained the table of contents. On the front page, the interviewer wrote the respondent's name, the household's number, the member's column number, also the numbers of the interviewer, the survey area, and the survey manager's area.

On the title pages of diaries 1 and 2, the day for which the diary had to be filled in was marked. In the interviewer's section, "Prescribed day" featured the day which according to the sample was determined for filling in the diary. If someone from the household was unable to fill in the diary on the prescribed day, a new day was marked under "Postponed day".

At first, the interviewer had to ask the respondent to read the instruction at the beginning of the diaries.

At the beginning of the diaries there were three examples: about the days of an adult, a child aged at least ten, and of an elderly person. They were meant to help the respondent to decide how and what to write about their days. However, the respondent did not have to mark separately if he/she was an adult, child or elderly person.

Attention had to be drawn to filling in the following sections as well.

## Diary columns

### 1. Time

#### Period of 10-minute interval

#### 2. Main activity

This column asks to mark all activities in ten-minute intervals. The day started at 04.00 a.m. and ended at 04.00 a.m., covering 24 hours. The three examples at the beginning of the diary regarding the days of an adult, child and elderly person were meant to help find a reasonable level of detail which to follow while writing down the activities. If several activities were performed at the same time, the main activity had to be marked. It had to be observed that only one main activity was to be marked on one row. If the activity lasted more than ten minutes, the same activity was marked with a repetition mark (-"-). If the activity lasted for hours (e.g. regular work), it was marked with an arrow (↓) until the time when it ended. If an activity was very private and the respondent did not wish to mark it, "private" was written on the diary row.

#### Paid work

The respondent did not have to mark what he/she did during working time, but the main job and second job(s) had to be differentiated. Also the activities during the breaks had to be marked, e.g. "had lunch" or "went for a walk". If work was taken home, it had to be marked as well.

#### Study

If a respondent went to school or lectures, the type of school (primary school, university, etc.) had to be marked. If studying was a part of paid work, it had to be marked as well.

#### Travel and other movement

Travel was definitely differentiated from other activities. The destination and the reason of travel had to be marked by all means. For example "went to the bus-stop", "went shopping", "was shopping", "went home", etc. The mode of travelling was written in the column "Where were you? Which vehicle did you travel with?".

#### Housework and childcare

Real activities were marked, e.g. "made dinner", "washed the dishes", "spent time with children", "put children to bed", "mowed the lawn", "washed the car", etc.

#### Reading (excl. studying)

It had to be marked what the respondent read: a newspaper, a magazine, a novel, etc.

#### Helping other households

If the respondent helped someone outside his/her household, it was also marked in the diary. Helping had to be marked also when it was done for the respondent's own household, e.g. "bought food for myself as well as for the neighbour".

### 3. Did you use the computer or internet when performing the main activity?

"X" was marked next to the main activity if the computer or internet was used. The use of the computer and internet did not have to be marked for the time spent at work or school.

### 4. What else did you do?

If the respondent was engaged in more than one activity at a time, the other activity was marked in the column "What else did you do?". For example, the respondent might have looked after children (main activity) and watched TV (secondary activity). The respondent had to decide which was the main and which the secondary activity for him/her. The duration of the secondary activity had also to be marked, because it need not last as long as the main activity. If the activity lasted more than ten minutes, the same activity was marked with a repetition mark (-"-). If the activity lasted for hours (e.g. watching TV), it was marked with an arrow (↓) until the time it ended.

## 5. Where were you? Which vehicle did you travel with?

The respondent had to write where he/she was during the activity or which vehicle the respondent travelled with (e.g. “at home”, “by bus”, “on foot”, etc.). If the place or mode of travelling recurred, a repetition mark (“-”) or an arrow (↓) was marked in the next row.

## 6. Were you alone or with someone?

Attention had to be paid to what a household is and who the household members are – it was essential for filling in the diaries. As the household composition was determined beforehand (during the household interview) with the interviewer, the same persons had to be taken into account. For each activity, it could be marked whether it was performed alone, with the spouse/partner, with a parent (father/mother), with a child aged less than ten, with other household members (includes also children aged at least ten) or with someone outside the household.

Being alone or with someone was marked in a separate cell with an “X”. Being with somebody did not mean that an activity was performed with somebody at the same time, but rather that someone was present while the activity was performed. In the case of communicating with someone via the internet or on the telephone, the respondent was not with these persons. In the case of being at the workplace, school or asleep, the time was marked as spent “alone”.

There was a checklist and a questionnaire at the end of both diaries. When the diary had been filled in, the respondent had also to answer the questions at the end of the diary and read the checklist through.

If the respondent was a child aged over ten, who could not fill in the diary by himself, he could do it together with a parent. If the respondent was a single elderly person, it was allowed to fill in the diary with the help of the interviewer. Upon introducing the diary to children, the interviewer had to give examples so that the children would understand which activities should be written down (see also the example of a child’s day at the beginning of the diary), e.g. “played outdoors”, “lessons at school”, “played with sister”, “did my homework”, “helped mother to cook”, “did some exercise: swimming”, “read a comic book”, etc.

When receiving the diaries, the interviewer had to examine on the spot how they had been filled in. This way, the respondents could be asked to specify if it was clear that the marked activity does not enable to determine the mode of travelling or if the description of an activity was too generic, e.g. “did housework” – the respondent was to definitely mark which kind of homework was done – tidying up, washing, repairing something, etc.

### Time of the interview

In the Time Use Survey, the Household Questionnaire was completed first. It took an average of 9 minutes to complete. The completion of the Personal Questionnaire took about 15 minutes. It took less time to fill in the questionnaire on the laptop than on paper: for example, the household interview lasted an average of 9 minutes when a laptop was used, but filling in the hard copy took an average of 14 minutes. A similar difference can be noticed when comparing electronic and paper versions of the Personal Questionnaire. The differences are caused by complex redirecting which in paper questionnaires must be followed by the respondent himself, but which are performed automatically in the laptop. Unfortunately, it is not possible to determine the time spent on filling in the diaries and entering the data from the diaries.

### Data cleaning

One of the major advantages of a laptop-assisted personal interview over interviews with a paper questionnaire is data cleaning during the interview. The electronic environment has logical checks for this purpose, notifying of any contradictions immediately after the last question associated with the check has been answered. The interviewer has to check the logical contradictions immediately during the interview and, depending on the problem, either correct the answer or add an explanatory remark to the question. The following describes the procedures of data cleaning of the submitted questionnaires:

- Logical checks and explanatory remarks added by the interviewers during the interview were reviewed. Sufficient explanations were accepted; in the case of errors or inadequate explanations, the interviewer had to specify the answer. If necessary, the interviewer contacted the respondent once again.

- The remarks added by the interviewer were reviewed. If necessary, the answers were corrected or the interviewer had to specify the answer. If necessary, the interviewer contacted the respondent once again.
- Explanations added to the option “other” were reviewed. If necessary, the answers were corrected or the interviewer had to specify the answer. If necessary, the interviewer contacted the respondent once again.

The diaries, unfortunately, did not enable this kind of checking, as the respondents filled in the diaries according to their understanding of the instructions. The interviewers could only be asked to flip through the diaries while collecting them to see if anything at all was written there and if there were too many empty fields or if too much text had been crossed out or was illegible. There were not too many completely empty diaries submitted – if returned at all, they were mostly filled in accurately.

#### **Data entry of diaries and activity coding**

The Time Use Survey diaries were used to collect information on people’s main and secondary activities. The respondents also had to mark in the diary where they were located during the activity or the means of transport they used; and in the last cell who they were with. This was primarily used to measure the communication within and between households. In this survey, it was essential to adhere to the definition of the household, as well as to find out whether the activities were performed alone or with the household. It was also asked whether the activities were performed with children, other household members, or acquaintances. This survey differentiated between activities performed alone or with other persons as follows: alone, with a spouse or partner, with a parent, with a child aged less than 10, with another household member or with an acquaintance.

As an innovation, the last survey included a question on using the computer when performing a main activity. Computer use did not have to be marked while being at the workplace or school.

Main activities were marked with ten-minute intervals. If the main activity lasted longer (e.g. paid work), the respondent recorded the starting time and indicated the duration of the activity with an arrow (↓). One secondary activity that was performed simultaneously with a main one could also be recorded. Both main and secondary activities were coded on the basis of the 3-digit activity coding list. The main activity was to be coded together with either a location or travel code.

Note that in the tables the time spent at a location has been given according to its share of 24 hours (including a row for the time spent in transport), while the tables for transport record only the time spent in transport according to the purpose.

#### **Definition of an episode**

The coding of the time use diaries is based on the concept of episode; defining an episode and determining when an episode turns into a new episode are therefore of central importance. Within an episode all rows are identical with respect to the main activity code, secondary activity code, “with whom” and location/movement codes. When there is a change in the main activity, secondary activity, presence of other persons or location, there is a change of episode. The start of an episode was always identical with the starting time of the main activity, but the end depended on the other components – i.e. a single main activity could be divided into two or three episodes.

Entry and coding of the diaries was performed using the BLAISE system. The ending time of an episode was automatically recorded as the starting time of a new episode. The total duration of episodes had to equal 24 hours.

The accuracy of coding depended on the amount of detail provided by the respondent. Although activities generally had to be coded under 3-digit codes, 2-digit codes were sometimes used in cases where activities lacked specificity. If the activity could not be specified, the activity was either coded as 998 (unspecified leisure time) or 999 (unspecified time use) (the latter occurred in 59 diaries). In the case of 11 diaries, activities were coded as unspecified activities or more than half of the diary was left uncompleted.

#### **Coding of main activities**

For coding the main activities, the activity coding list was used (Table 12, p. 32). Only one main activity could be coded within a 10-minute interval. If a respondent had recorded several simultaneous main activities, e.g. “having supper and talking with the family”, having supper is considered the main activity, talking with the family the secondary activity. If no

secondary activity was marked together with the main activity, then the simultaneous activity was coded as secondary.

More detailed information on coding and codes, as well as coding travel is available in the publication “Time Use Survey: Methodological Overview” (published in 2001) on the previous Time Use Survey conducted in 1999–2000. The coding principles remained the same. Some codes changed, they can be seen in the coding list.

## 2.9. Imputation

For imputation, the IVEware software was used. This software implements different types of regression to find new values, depending on the type of the imputed characteristic (numerical/categorical). To maintain the variability of the values, a small error was also added to the predicted value.

In the case of characteristics C03 (Household Questionnaire), B24 and B27, the interval was asked if the exact value was missing. Thus, the values for which the respondent was unable to or did not wish to reveal the interval, were imputed first. Then, the exact answer was imputed within each interval. In both cases, the same set of explanatory characteristics was used.

Table 11 provides the number of missing values and explanatory characteristics for designing the model.

Table 11

| Imputed characteristic                                        | Number of values (incl. missing values) | Number of missing values | ..of which also the interval is missing | Explanatory characteristics                      |
|---------------------------------------------------------------|-----------------------------------------|--------------------------|-----------------------------------------|--------------------------------------------------|
| C03 (lk)<br>Money at the disposal of the household            | 3130                                    | 365                      | 50                                      | yd8 auto arvuti<br>c02_lk elav lk_tyyp<br>hh_ec1 |
| B24_netto<br>Regular monthly net wages and salaries           | 2883                                    | 358                      | 286                                     | B26 ya1 rahvus<br>oc_1 yd8 age_rev<br>c03eq      |
| B27_netto<br>Regular monthly net income from entrepreneurship | 150                                     | 44                       | 38                                      | B26 tper_seis YA1<br>age_rev c03_lk              |
| C04_netto<br>Regular monthly net income from second jobs      | 158                                     | 23                       | -                                       | B26 ya1 C02<br>c03_lk c02_lk c03a                |

### Explanatory characteristics

|           |                                                                                             |
|-----------|---------------------------------------------------------------------------------------------|
| YD8       | Condition of dwelling                                                                       |
| AUTO      | Existence of a car                                                                          |
| ARVUTI    | Existence of a computer                                                                     |
| C02_lk    | Main income source of the household                                                         |
| ELAV      | Household's place of residence                                                              |
| LK_TYYP   | Type of household                                                                           |
| HH_EC1    | Number of working household members aged 16–64                                              |
| B26       | Working full-time or part-time                                                              |
| YA1       | Gender                                                                                      |
| RAHVUS    | Ethnic nationality                                                                          |
| OC_1      | One-digit ISCO code of the current or last occupation                                       |
| AGE_rev   | Converted age: $\text{age\_rev} = (81 - \text{age}) * (\text{age} + 7)$                     |
| C03eq     | Money at the disposal of the household (imputed) divided by the number of household members |
| C03_lk    | Money at the disposal of the household (imputed)                                            |
| TPER_SEIS | Real marital status                                                                         |
| SEC       | Self-estimated socio-economic status                                                        |
| C02       | Number of second jobs                                                                       |
| C03A      | Total number of hours in second jobs                                                        |

### 3. Timeliness and punctuality

The fieldwork for the Time Use Survey ended in March 2010, the last diaries were submitted in April and the data from them were entered in May. This was followed by data cleaning and methodological work: the calculation of weights and the imputation procedure. The survey data were published for the first time on 15 December 2010.

### 4. Accessibility and clarity

#### 4.1. Published data

The Time Use Survey data were published in the database of Statistics Estonia, under the subject area "Social life", sub-area "Time use".

The data are available for two periods – 1999/2000 and 2009/2010.

Published news releases and articles

1. Tikva, P. "People have more leisure time than ten years ago". News release of Statistics Estonia 15.12.2010
2. Tikva, P. „Naistel ja meestel on rohkem vaba aega“ (Women and men have more leisure time, only in Estonian). Blog of Statistics Estonia, 15.12.2010
3. Kommel, K. "Residents of Estonia continuously take a big interest in book reading". News release of Statistics Estonia 21.12.2010

A publication will be issued on the Time Use Survey in 2012 as well.

Access to individual data is ensured by the Official Statistics Act, which the Riigikogu adopted on 11 June and the President of the Republic proclaimed as law on 21 June. Additional information on the possibilities for using individual data can be found on the website of Statistics Estonia.

### 5. Comparability

#### 5.1. Main definitions

**Adult and child(ren)** — household consisting of one adult and at least one child aged 0-17.

**Basic and lower education** — no elementary education, elementary education and basic education.

**Couple aged 65 and over without children** — household consisting of two members, both aged 65 or more.

**Couple with children aged 0–17** — a legally married or cohabiting couple with at least one child aged 0–17.

**Couple with minor and adult children** — household consisting of two adults, at least one child aged 0-17 and at least one child aged 18 and over.

**Couple with one child** — household consisting of two adults and one child aged 0-17.

**Couple without children** — a legally married or cohabiting couple without children aged under 18.

**Couple without children, at least one partner is aged under 65** — household consisting of two adults, at least one of them aged 64 or less.

**Couple with three or more children** — household consisting of two adults and at least three children aged 0-17.

**Couple with two children** — household consisting of two adults and two children aged 0-17.

**Higher education** — specialized secondary education, vocational higher education, university education and postgraduate degrees.

**Household** — a group of persons living in the common main dwelling (at the same address), who share joint financial and/or food resources and whose members consider themselves to belong to the same household. Household can also consist of one member only.

**Household with children** — household where there is at least one child aged 0-17.

**Household without children** — household where there are no children aged 0-17.

**Primary activity** — the main activity recorded by a respondent in a time-use diary. E.g. childcare may be a primary activity and watching TV at the same time a secondary activity.

**Rural settlements** — small towns and villages.

**Secondary activity** — the secondary activity recorded by a respondent in a time-use diary in the case of simultaneous activities. E.g. childcare may be a primary activity and watching TV at the same time a secondary activity. Respondent has to decide which activity is the main and which activity the secondary activity.

**Secondary education** — general secondary education and vocational secondary education.

**Single** — household consisting of one member.

**Single parent with children aged 0–17** — a household with one adult and at least one child aged under 18.

**Single person aged over 64** — household consisting of one person aged 65 or more.

**Single person aged under 65** — household consisting of one person aged 64 or less.

**Urban settlements** — cities, cities without municipal status and towns.

## 5.2. Comparability with previous surveys

The Time Use Survey of 2009–2010 can be compared with the previous survey conducted on the basis of the same methodology in 1999–2000. The data show that the surveys are comparable and there are no big differences between the two surveys. The surveys show the trends in people's time use over a ten-year period.

Observing people's average time use with regard to the time spent by persons aged ten and older on working days and weekends, it can be noted that people spend 40 minutes more on leisure time. Almost the same amount of time was spent on working, studying and housework ten years ago.

18 minutes less per day are spent on paid work and 14 minutes less are spent on studying than ten years ago. Ten years ago, people spent 3 hours and 45 minutes per day on the household and family, whereas now the corresponding time has shortened by about a half.

During the ten years, the time spent on working has shortened and that spent on leisure time has lengthened. However, it must be taken into account that in 2010 unemployment increased rapidly and less time spent on working may be a result of that. Leisure time also includes a lot of communication; one of the forms of which may be communication for the purpose of seeking a job. The time spent on the computer is significantly longer compared to the period ten years ago. Nevertheless, considering the increase in the expenditure on leisure time, it can be said that both more time and money is spent on leisure time.

Half of the leisure time or two hours per day is still spent watching TV; however, this is slightly less than ten years ago. Time spent watching TV has considerably decreased among young people aged 10–24 (nearly 40 minutes less than ten years ago). At the same time, the same age group spends approximately 1.5 hours per day on computing.

A large share of leisure time is spent on social life just as before (36 minutes per day). Computers have become essential in spending one's leisure time (also about 36 minutes per day). 27 minutes per day were spent on sports and this time has not lengthened in ten years.

In the case of activities related to the family and household, 53 minutes per day are spent on food management, this is nearly a quarter of an hour less than ten years ago. 24 minutes per day were spent on shopping and services, this time has not lengthened significantly either, although the number of shopping centres has increased considerably.



### 5.3. CLASSIFICATIONS

Table 12 Activity coding list

|     |                                                                   |
|-----|-------------------------------------------------------------------|
| 011 | Sleep                                                             |
| 012 | Sick in bed                                                       |
| 013 | Nursed in bed                                                     |
| 020 | Eating and drinking                                               |
| 021 | Eating                                                            |
| 022 | Snacks and drinks                                                 |
| 030 | Other personal care                                               |
| 031 | Wash and dress                                                    |
| 032 | Medical care                                                      |
| 039 | Other specified personal care                                     |
| 111 | Working time in main job                                          |
| 112 | Coffee- and other breaks in main job                              |
| 113 | Farming                                                           |
| 121 | Working time in second job                                        |
| 122 | Coffee and other breaks in second job                             |
| 123 | Farming                                                           |
| 130 | Unspecified activities related to employer                        |
| 131 | Seeking a job                                                     |
| 139 | Other activities related to working                               |
| 141 | Lunch breaks                                                      |
| 200 | Study                                                             |
| 210 | School/university                                                 |
| 211 | Classes and lectures                                              |
| 212 | Homework                                                          |
| 213 | Breaks                                                            |
| 219 | Other activities                                                  |
| 220 | Free time study                                                   |
| 221 | Studies and courses in free time                                  |
| 300 | Household and family care                                         |
| 310 | Food management                                                   |
| 311 | Food preparation                                                  |
| 312 | Baking                                                            |
| 313 | Dish washing                                                      |
| 314 | Preserving                                                        |
| 319 | Other specified food management                                   |
| 320 | Household upkeep                                                  |
| 321 | Cleaning dwelling                                                 |
| 322 | Cleaning yard                                                     |
| 323 | Heating and water                                                 |
| 329 | Other specified household upkeep                                  |
| 330 | Making and care for textiles                                      |
| 331 | Laundry                                                           |
| 332 | Ironing                                                           |
| 333 | Handicraft and producing textiles                                 |
| 339 | Other specified making and care for textiles                      |
| 340 | Gardening and pet care                                            |
| 341 | Gardening                                                         |
| 342 | Tending domestic animals                                          |
| 343 | Caring for pets                                                   |
| 344 | Walking the dog                                                   |
| 349 | Other activity related to gardening and domestic animals and pets |
| 350 | Construction and repairs                                          |
| 351 | House construction and repairs                                    |
| 352 | Repairs of dwelling                                               |
| 353 | Making, repairing and maintaining equipment                       |
| 354 | Vehicle maintenance                                               |
| 359 | Other specified construction and repairs                          |
| 360 | Shopping and services                                             |
| 361 | Shopping                                                          |
| 362 | Commercial and administrative services                            |
| 363 | Personal services (excl. medical services)                        |
| 365 | Medical services                                                  |
| 369 | Other specified shopping and services                             |
| 370 | Unspecified household management                                  |

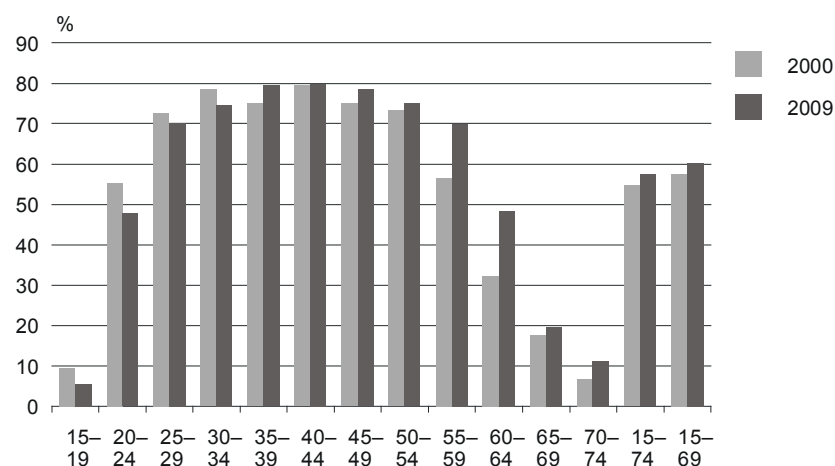
|     |                                                                        |
|-----|------------------------------------------------------------------------|
| 371 | Household management                                                   |
| 380 | Childcare                                                              |
| 381 | Physical care and supervision                                          |
| 382 | Teaching child                                                         |
| 383 | Reading, playing and talking with child                                |
| 384 | Accompanying child                                                     |
| 389 | Other activity related to childcare                                    |
| 390 | Help to an adult family member                                         |
| 391 | Physical care of a sick or disabled adult family member                |
| 392 | Supervision and accompanying of a sick or disabled adult family member |
| 399 | Other help to an adult family member                                   |
| 410 | Volunteer work for an organisation                                     |
| 411 | Work for an organisation                                               |
| 412 | Work for people (through an organisation)                              |
| 420 | Unspecified informal help                                              |
| 421 | Repairs as help                                                        |
| 422 | Help in working place or farming                                       |
| 423 | Child-care as help of children living in a household except your own   |
| 424 | Child-care as help to another household                                |
| 425 | Adult assistance and care as help                                      |
| 429 | Other specified informal help                                          |
| 430 | Participatory activities                                               |
| 431 | Meetings                                                               |
| 432 | Religious activities                                                   |
| 439 | Other specified participatory activities                               |
| 510 | Social life                                                            |
| 511 | Socializing with the family                                            |
| 512 | Visiting and receiving visitors                                        |
| 513 | Parties and get-togethers                                              |
| 514 | Telephone conversations                                                |
| 519 | Other specified social life                                            |
| 520 | Entertainment and culture                                              |
| 521 | Cinema                                                                 |
| 522 | Theatre, concert                                                       |
| 523 | Art exhibitions, museums                                               |
| 524 | Library                                                                |
| 525 | Sports events                                                          |
| 526 | Excursions, zoo, sightseeing                                           |
| 529 | Other specified entertainment and culture                              |
| 530 | Resting                                                                |
| 531 | Resting                                                                |
| 600 | Going in for sports                                                    |
| 610 | Physical exercise                                                      |
| 611 | Walking, hiking                                                        |
| 612 | Jogging, running                                                       |
| 613 | Biking, skiing, skating                                                |
| 614 | Ball games                                                             |
| 615 | Gymnastics                                                             |
| 616 | Fitness                                                                |
| 617 | Water sports                                                           |
| 619 | Other sports                                                           |
| 620 | "Productive" exercise                                                  |
| 621 | Hunting, fishing, picking berries and mushrooms                        |
| 629 | Other specified productive exercise                                    |
| 630 | Sports-related activities                                              |
| 631 | Sports-related activities (not sports)                                 |
| 700 | Hobbies and games                                                      |
| 710 | Arts                                                                   |
| 711 | Visual arts                                                            |
| 712 | Performing arts                                                        |
| 713 | Literary arts                                                          |
| 714 | Correspondence (letters, faxes)                                        |
| 715 | Collecting                                                             |
| 719 | Other specified arts and hobbies                                       |
| 720 | Technical hobbies                                                      |
| 721 | Computing-programming                                                  |
| 722 | Information by computing                                               |

|     |                                                                   |
|-----|-------------------------------------------------------------------|
| 723 | Communication by computing                                        |
| 729 | Other computing                                                   |
| 730 | Games                                                             |
| 731 | Solo games                                                        |
| 732 | Parlour and group games                                           |
| 733 | Computer games                                                    |
| 734 | Gambling                                                          |
| 739 | Other games                                                       |
| 810 | Reading                                                           |
| 811 | Reading periodicals                                               |
| 812 | Reading books                                                     |
| 819 | Other specified reading                                           |
| 820 | TV and video                                                      |
| 821 | TV                                                                |
| 822 | Video/DVD                                                         |
| 830 | Radio and music                                                   |
| 831 | Radio                                                             |
| 832 | Recordings                                                        |
| 901 | Travel related to personal care                                   |
| 911 | Travel related to work                                            |
| 912 | Travel related to workplace and home                              |
| 921 | Travel related to school (university)                             |
| 922 | Travel related to additional training                             |
| 931 | Travel related to household care                                  |
| 936 | Travel related to shopping, servicing                             |
| 937 | Travel related to treatment or procedures in medical institutions |
| 938 | Travel related to childcare                                       |
| 939 | Travel related to care of an adult                                |
| 941 | Travel related to organisational work                             |
| 942 | Travel related to informal help                                   |
| 943 | Travel related to participatory activities                        |
| 951 | Travel related to communication                                   |
| 952 | Travel related to entertainment and culture                       |
| 961 | Travel related to sports                                          |
| 971 | Travel related to arts, hobbies, games                            |
| 989 | Other travel                                                      |
| 995 | Keeping the diary                                                 |
| 998 | Unspecified leisure time                                          |
| 999 | Unspecified time use                                              |

## 6. Imputability

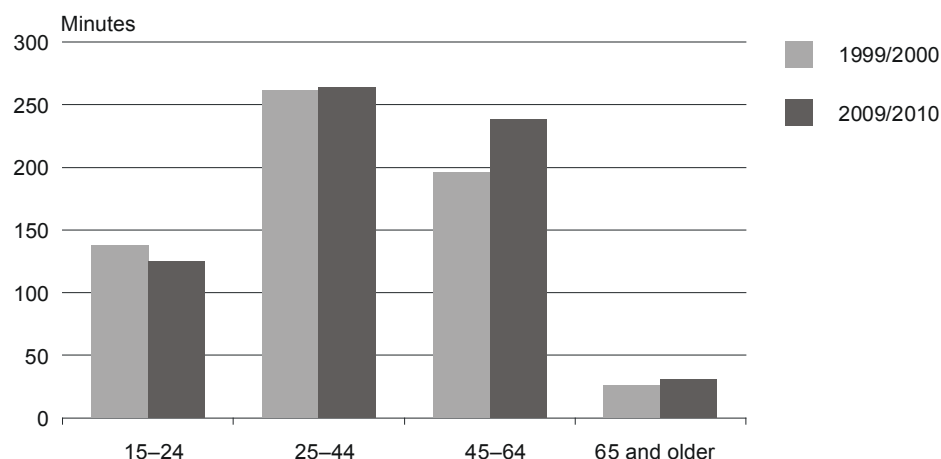
The data of the Time Use Survey are best comparable with the previous Time Use Survey. To connect the results with some other survey, the data of the Estonian Labour Force Survey and the Time Use Survey (concerning the employment rate and time spent working) can be juxtaposed.

Figure 6 **Employment rate among persons aged 15–74 by age group and year**



Source: Estonian Labour Force Survey

Figure 7 **Average time spent on paid work per day by age group and year**

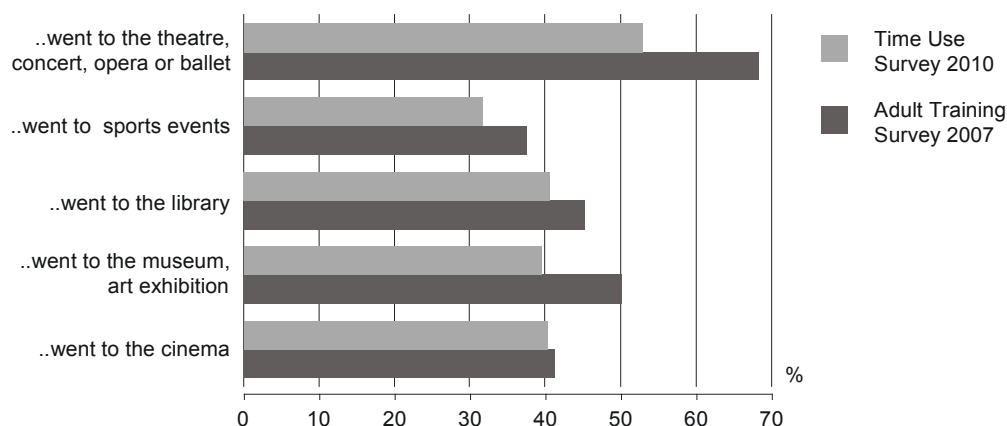


Source: Time Use Survey

Figure 6 presents the employment rate by age groups and it can be compared with people's time use shown in Figure 7. According to the Time Use Survey, it is evident that among persons aged 45–64 the average time spent on paid work per day has lengthened by 42 minutes, at the same time the Estonian Labour Force Survey shows that, among persons aged 45–64, the employment rate has increased significantly compared to the period a decade ago, in the case of persons aged 60–64 even by 15.9 percentage points. The data are thus comparable and imputable.

It is also possible to compare people's use of leisure time, e.g. visiting entertainment and cultural events. For example, the sample of the Adult Training Survey (part of the international survey that is conducted simultaneously in all EU Member States and candidate countries) included persons aged 20–64 in Estonia in 2007. It is possible to compare the data of the Time Use Survey with the data of the Adult Training Survey 2007, which concern people's participation in cultural life and visiting entertainment institutions. The Personal Questionnaire of the Time Use Survey asked which entertainment institutions the person had visited in the last 12 months.

Figure 8 **Participation of persons aged 20–64 in cultural life during the last 12 months (Adult Training Survey 2007) and visiting entertainment events (Time Use Survey 2009/2010)**



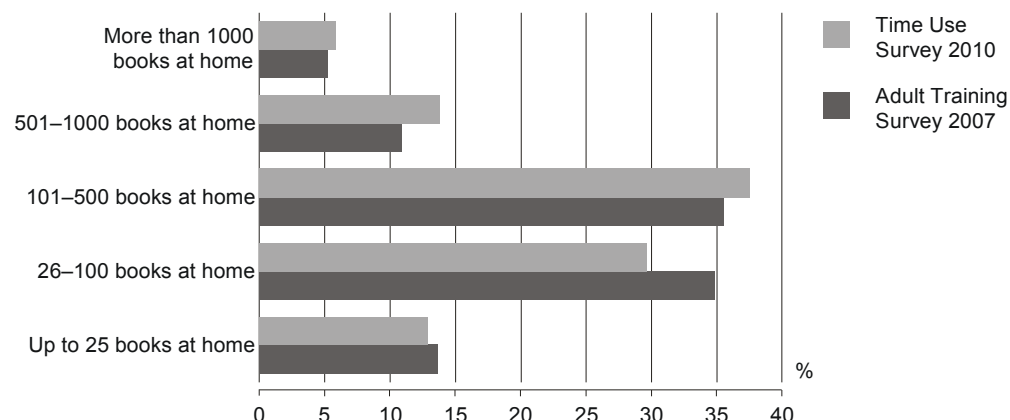
Source: Adult Training Survey 2007  
Time Use Survey 2010

Figure 8 shows that the number of cinema visits were equal according to the two surveys, the data on visits to the library and sports events are also more or less equal. The discrepancy between the rest of the data may have resulted from the different time of the surveys or the fact that the Time Use Survey asked about all types of cultural

institutions/events separately, but the Adult Training Survey had put all the similar establishments together and thus the visits were overestimated.

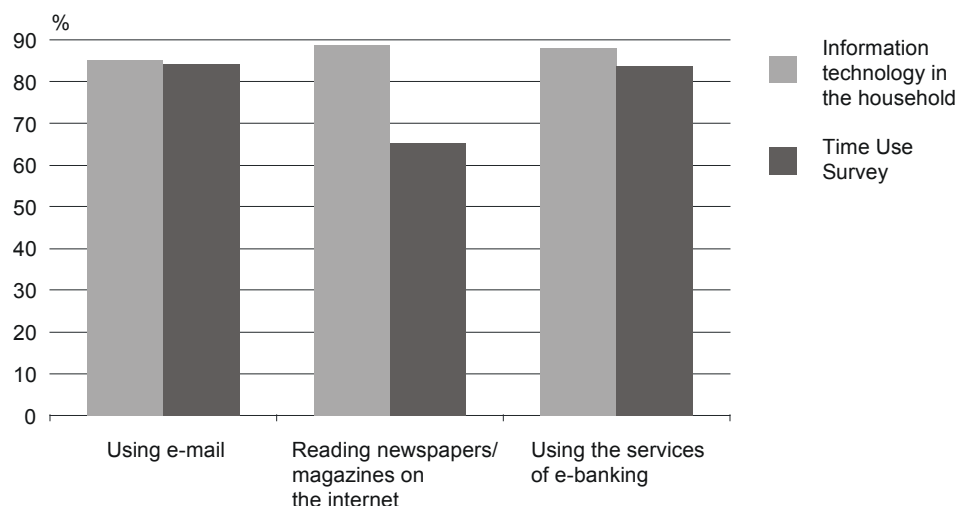
Similarly, the data of these surveys can be compared regarding how many books there were at people's homes (Adult Training Survey) and childhood homes (Time Use Survey). The difference may be caused by the fact that people do not remember the amount of books in their childhood homes.

Figure 9 **Books at the homes (Adult Training Survey 2007) and childhood homes (Time Use Survey 2009/2010) of persons aged 20–64**



According to the purpose of using the internet, the data of the Time Use Survey can be compared with the data of the survey “Information technology in the household”. This includes households where at least one member was aged 16–74. The survey “Information technology in the household” is conducted as an appendix to the Labour Force Survey and a sample survey. The data are for the year 2010.

Figure 10 **Main purposes of using the internet among persons aged 16–74 (percentage among all users (Labour Force Survey) and among respondents (Time Use Survey))**



## Sources

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