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Ministry of Education, Culture and Sport  
Ministry of Labour and Social Welfare  
National Insurance Institute  
Ministry of Tourism  
JDC Israel

# **TIME USE IN ISRAEL**

## **TIME BUDGET SURVEY 1991/92**

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## P R E F A C E

This publication, for the first time, presents inclusive information on time allocation by the population in Israel for various fields of activities. The survey "Time Budgeting", which is conducted in most developed countries (periodically, in some of them), was conducted for the first time by the Central Bureau of Statistics between November 1991 and April 1992.

The survey encompasses activities in the fields of employment, education, home and family involvements, habits of using leisure time at home and out-of-home, volunteer activities, sport, excursions and attending synagogue and performing religious deeds for Jews, and more. The advantage of the Time Budget Survey is that it encompasses, through use of systematic research, activities during a full day and thus enables a measuring of time use which is more precise and reliable than with surveys that focus on the investigation of a certain field of activities.

Survey data enable us to discern the differences in patterns of time budgeting and habits of use of leisure time between different groups by demographic characteristics, level of education, employment status, measure of religiousness and others. Survey findings also relate to the differences in activities of the population by type of day in the week (weekday, Friday, Saturday).

A steering committee guided the planning and execution of the survey with the advisement of academic experts. This committee was made up of representatives of each of the bodies which financed the survey.

The methodology and classification of activities were based on recommendations of the "International Association for Time Use Research" and were adjusted to special needs and the Israeli way of life.

The late Uri Avner, a board member of the Bureau and in-charge of Social Statistics initiated this survey. Thanks to his effort, different factors recognized the importance of conducting this survey and the wide variety of results, arranged for financing and aided in its planning. The late Uri Avner based the survey plan and the method of investigation, but fell ill to a severe illness even before the survey's field work had begun. This publication is dedicated to his memory.

Ms. Gina Kozlov, Senior Coordinator in the Division Demography, Health and Social Statistics planned and prepared the publication with the assistance of Mr. Gabi Lang. The introduction chapters on Survey Methods and Reliability of the Estimates, and the Methodological Appendix were prepared by Ms. Malka Kantorowitz, Senior Deputy Director of Statistical Methods and in-charge of the Statistical Methods Division, with the assistance of Ms. Natalie Shlomo and Mr. Isaac Makovsky.

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Jerusalem, 1995

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## 2. SURVEY METHODS

### A. Sampling Method

The survey estimates are based on a representative sample of the survey population. The sample was planned so that each person would have an equal probability of being included in the sample. According to the sample size, this was 1:774.

The sample was planned with consideration for the size of the enumerator assignment, i.e. the number of investigation units (households and persons aged 14 and over) feasible for one enumerator in one locality in a given period. The smaller the assignment and the shorter the period of time, the less clustered the sample. However, this makes the field work more expensive to conduct. For field work considerations and based on preliminary assessments, it was decided that for the larger cities (with over 100,000 residents), in which about half of the population resides, each enumerator would be assigned a relatively small weekly portion of about 7 households. For other localities, each assignment would be investigated during two consecutive weeks and would include about 12 households in Jewish (or mixed) localities, and about 10 households in non-Jewish localities.

In the first stage a sample of localities was drawn.

First, the larger localities, from which there would be at least one enumerator assignment, were included in the sample with certainty. Each of these localities constitutes a stratum on its own. The number of assignments in each locality was determined according to its size. This group comprised 37 localities: the 3 largest cities, 8 other large localities (numbering 100,000 residents or more), 25 Jewish (and mixed) localities of medium size and one non-Jewish locality (Nazareth).

Next, a sample was drawn from the remaining localities, within three main strata and sub-strata were determined according to several characteristics so that in each of them, the size corresponded to at least two enumerator assignments:

- a. Jewish (or mixed) urban localities (i.e. with at least 2,000 residents) were divided by the locality's socio-economic index (based on the last census), taking into account the locality's size and its distance from a large urban locality.
- b. Jewish rural localities were divided into three strata by type of locality (qibbuzim, moshavim and other villages): within these, sub-stratification, wherever possible, was by "age" of the locality and region.
- c. Non-Jewish localities, with over 10,000 residents, were divided into sub-strata according to the socio-economic index, and the remainder were divided according to a combination of other characteristics.

In each sub-stratum, the localities were sampled with probability proportional to size, so that in each sampled locality there would be

one enumerator assignment, constituting a cluster of households.

This second group included a total of 48 localities:

- 19 of the 61 Jewish (and mixed) urban localities;
- 13 of the 113 non-Jewish localities;
- 7 of the 454 moshavim;
- 6 of the 270 qibbuzim;
- 3 of the 219 other rural localities.

In the second stage, a sample of dwellings in each of the sampled localities was drawn.

Within each of the localities sampled with certainty, dwellings were sampled according to the overall sampling ratio (1:774). Within each of the other sampled localities, dwellings were drawn with a sampling ratio, so that the multiplier of the sampling probabilities of the locality itself and of its dwellings would be the same for all dwellings in all localities (1:774). Using this method, the number of dwellings in each of these localities corresponded (nearly) to one enumerator assignment.

In urban localities, as in other families surveys, the municipal tax files were used as the sampling frames for drawing the sample of dwellings. Updated frames are received by the CBS every year. Most types of non-residential property are removed from these frames. Despite this, some of the non-residential units are discovered only after the sample is drawn and, some only after investigation in the field, i.e. empty dwellings, commercial units, etc. The inclusion of such units in the sample does not lead to a bias but does reduce somewhat the sample efficiency.

A random-systematic sample of dwellings was drawn in each locality separately, after arranging the dwellings geographically so that the sample was dispersed throughout the locality. In non-urban localities, the enumerators drew the sample from local lists in the course of the field work, according to instructions given them in advance.

Since at the time of sampling, the municipal taxes files were not updated to the time of the survey, the sample was supplemented with new dwellings drawn from a special frame of new construction. In addition, supplementary samples of housing units in protected tenant centers for the elderly, student dormitories and absorption centers for new immigrants, were drawn from special frames.

For each sampled dwelling, all households residing there at the time of the survey had to be investigated. All persons aged 14 and over belonging to the sampled households were included in the sample, on condition that they belonged to the survey population (see "Definitions and Explanations", section A).

Altogether, about 1,800 dwellings were sampled in 85 localities.

About one quarter of the sampled dwellings were in the three large cities, about one quarter in the other eight localities numbering

100,000 or more and, about another quarter in the other localities included with certainty. Thus, about three quarters of the overall sample was not geographically clustered. However, the entire sample of Jewish non-urban localities and most of the sample (nearly 90%) from the non-Jewish population was geographically clustered.

The sampled dwellings in localities with more than one enumerator assignment were grouped into enumerator assignments in the regional offices according to their proximity.

In order to balance the sample over the survey period, the enumerator assignments were spread over the 26 weeks of investigation, so that every week, a sub-sample as representative as possible was designated for investigation. Allocation of enumerator assignments to each week was done with maximum balance of the sample by type of locality and by socio-economic index of the assignment, within the limitations imposed by fieldwork organization.

## 8. Method of Data Collection

Data was collected from each interviewee on daily activities by using two types of diaries: a recall diary, to be filled out by the enumerator for activities prior to the interview, and a self-recorded diary to be filled out by the interviewee for a period after the interview. Information on less frequent activities, or for those that could not be obtained from the diaries because no information on secondary activities was requested (like listening to radio), was collected using a retrospective questionnaire.

Different means of investigation were used in order to obtain all the necessary information with the greatest possible degree of reliability. Also, the enumerator obtained data by personal interview, with a maximal effort to avoid proxy, i.e. obtaining data from another member of the household.

In addition, demographic and socio-economic data were obtained for each member of the household and for the household as a whole. This information provides explanatory variables to study the differences between various groups in time allocation for various activities and leisure habits.

1. Family Questionnaire - this was used for collecting data on the household as a whole (number of rooms, domestic appliances, etc., see Appendix A). Basic data on household members (age, sex, etc.) were recorded on the "envelope" which served (among other things) to monitor the response to the questionnaires and diaries.
2. Personal Questionnaire (Appendix A) - through a series of retrospective questions, data was collected on certain activities that took place prior to the time of the interview.

The length of the reference period was suited to the type of activity: the less frequent the activity, the longer the reference period that was investigated. Some activities were investigated for



a week (e.g. reading newspapers), some for a month (e.g. reading books), some for three months (e.g. volunteer activities) and some for a year (e.g. participation in courses).

The longer the reference period, the greater the number of activities and, seemingly, more information and more precise information is obtained. However, there is a memory effect so that an event may be forgotten completely, or may be remembered incorrectly, or events that took place prior to (or after) the reference period may be included by mistake ("telescoping").

The memory effect depends on the individual as well as on the type of event reported on - some events are remembered for a long period of time and some are forgotten quickly, depending on the importance of the event to the person reporting. Therefore, the personal questionnaires were intended for investigating activities that are not daily, on the assumption that the interviewee can report them with reasonable accuracy for the reference period.

Data on education, employment and measure of religiousness were also collected by the questionnaire. Questions were also asked about attitudes on various issues.

3. Personal Diaries (Appendix B) - a diary was used, since through retrospective questionnaires, and due to the memory effect, it is impossible to obtain the required detailed information regarding most daily activities with a reasonable level of accuracy. Details on all activities were recorded in the diary - type of activity, when it was done, social framework, etc.

Recordings in the diaries were made for 15 minute periods during the day (between 04:00 and 00:30) and for 30 minute periods during the night (between 00:30 and 04:00).

Each diary was intended for reporting on one full day although some interviewees were asked to report on two full days and in some cases, on three full days. For each period of time, the main activity was recorded and secondary activities (e.g. listening to radio while performing home maintenance activities) were not recorded.

Note:

People, who for the whole day of investigation were involved in "out-of-scope" activities, such as were in the army, were in the hospital, were on vacation in Israel, or were on an excursion in Israel or abroad, did not fill out a personal diary with detailed activities. Instead, diaries were filled out for them with only the relevant "out-of-scope" activity, without any further details. This was done so as not to omit persons in the sample who belonged to the survey population from the weighting procedure. However, these diaries were not included in the survey estimates (see section E).

Two types of diaries were used:

- a. A recall diary of the previous day (or several days) through an interview, with the enumerator recording the data in the diary.
- b. A self-recorded diary for a specific following day (or several days) kept by the person, after being briefed by the enumerator (by recording a short previous period).

Each type of diary has advantages and disadvantages and neither is clearly preferred to the other.

On one hand, it is to be expected that recording in a diary by recall, done by enumerators who underwent special training, would be more complete and more accurate in many cases. However, enumerators may occasionally have a negative influence on answers obtained as a result of over-directing the interviewees.

On the other hand, it is known that recall is subject to memory effect which is not negligible, even for a very short period of time. Filling out a diary while the activities are performed considerably lessens the memory effect, providing that the person actually fills it out. However, while filling out a diary, people may change their behaviour when recording their activities, although this is more likely if a person is asked to record for a large number of days.

The response rate is expected to be lower for self-recorded diaries, but may not be the same for different groups of the population. As a result, the survey estimates may be subject to greater bias. However, with self-recorded diaries, it is possible to have more control over the distribution over time of the investigated days. This is because the enumerator can ask the interviewee to fill out the diary for the day chosen, after instructing him on some previous day. This also allows the enumerators more flexibility with their time and makes the work easier. Recall is especially problematic when enumerators work only five days a week, thus Thursdays and Fridays can only be represented through recall on Sundays, and the memory effect will be more prominent.

The cost of investigation, if reporting is required for one day only, is lower using the recall diary than the self-recorded diary. A recall diary requires one visit for each day reported (if the person is at home, otherwise return visits are required, which means deferring the reference day). Using a self-recorded diary requires two visits. One visit is required for placing the diary and instructing the interviewee (by recall of a certain period). A second visit is made to collect the diary, to complete a partially filled out diary, or to fill out a recall diary, if the self-recorded diary was not filled out at all. However, if each person is asked to fill out a self-recorded diary for several days, the average cost per day will be less.

To lower the cost of using a self-recorded diary, it is possible to request the return of the filled out diary by post. But, in this

case, there is room for concern about whether there will be a satisfactory rate of response.

For this survey it was decided to use a combination of a recall diary and a self-recorded diary returned by mail (in order to save the expense of an additional visit by the enumerator).

The allocation of the reporting days to the persons by the day of the interview and diary type was as follows:

Day of interview	Day to be Reported in Diary					
	Sun.	Mon.	Tue.	Wed.	Thu.	Fri. + Sat.
Sun.	-	Self	-	-	-	Recall Recall
Mon.	Recall	-	Self	-	-	- -
Tue.	-	Recall	-	-	Self	- -
Wed.	-	-	Recall	-	Self	- -
Thu.	-	-	-	Recall	-	Self Self

Using the combined method for the survey was mainly to obtain coverage of Thursdays, since enumerators do not work on Fridays and Saturdays and, it is impossible to recall Thursdays on Sundays due to the severity of the memory effect. Furthermore, since the response to a self-recorded diary was expected to be lower than that of a recall diary (especially since the enumerator does not return to the household for collecting the diary), a self-recorded diary was left to be filled out for Thursdays by people who were interviewed on two days - Tuesdays and Wednesdays.

The combined method was also intended to obtain a larger sample of Fridays and Saturdays, since separate estimates for weekend days were required, and since on these days, greater differences were expected between individuals of different sub-populations. If the sample was uniformly spread over interviewing days and if the response rate for recall diaries and for self-recorded diaries was the same, Sundays and Wednesdays would be represented only half as much as other days of the week. However, since the response rate for self-recorded diaries returned by post was even lower than expected, and since no uniform spread of interviewing days was obtained, in the resulting representation of various days, the differential was less than expected (See section C.).

In addition, investigation by both methods can somewhat reduce bias due to the memory effect in the survey estimates. This may also enable an assessment of the memory effect, especially for Fridays, for which the recall period was the longest.

## C. Participation Rate

### 1. Dwellings in the sample

Of the 1,801 sampled dwellings, in 176 dwellings (9.8%) there was no household to be interviewed. About two-thirds of these dwellings were not populated (empty, demolished, or businesses) and, about one-third were populated by persons who did not belong to the survey population (new immigrants who had been in Israel less than one year, tourists and diplomats).

### 2. Households in the sample

In the remaining 1,625 dwellings, there were 1,645 households that should have been interviewed. In most of the dwellings, as expected, one household resided. In some, two households and in a few cases, there were more than two households.

273 households (16.6% of all households) were not investigated for various reasons.

For 24 non-respondent households intended to be investigated in January 1992, suitable substitutes with similar characteristics were found among those investigated in the survey which began in January 1991 but was stopped due to the Gulf War.

The distribution of households was as follows:

Total households	1,645	100.0%
At least one person was investigated (including the substituted cases)	1,396	84.9%
No person was investigated	249	15.1%
Refused	91	5.6%
Communication difficulties (illness, language)	36	2.2%
Absent (mostly in Israel, a few abroad)	94	5.8%
Not located, not contacted, reason unknown	28	1.7%

### 3. Persons in the households investigated

In the 1,396 households, where at least one person was investigated, there were 3,576 persons aged 14 and over belonging to the survey population.

Their distribution is as follows:

Total persons in households investigated	3,576	100.0%
Diary (at least one) and personal questionnaire obtained	3,041	85.0%
Only diary obtained	41	1.2%
Only personal questionnaire obtained	8	0.2%
No Diary and no personal questionnaire obtained	486	13.6%
Absent (after several repeat visits) Refused even though other family members responded)	330	9.3%
Communication/language difficulties	97	2.7%
Other reasons, or invalidated in editing	43	1.2%
	16	0.4%

Of the absent persons, about one-third were involved in "out-of-scope" activities on the day to be reported. For these cases, as mentioned above, it was not possible to fill out a regular diary, and diaries for them were imputed with one of the "out-of-scope" activities, either by the enumerators or afterwards, during the data processing.

#### 4. Total persons in the sample

Of all persons in the survey sample, about one-fourth(\*) did not respond at all, including those in households where no one responded, as well as those in households with at least one respondent (excluding absent persons known to be involved in "out-of-scope" activities).

The overall non-response rate for the personal questionnaires was slightly higher than that of diaries, due to the possibility that self-recorded diaries were left for persons who were absent.

In summary:

3,049 persons participated in the survey estimates derived from personal questionnaire data.

3,082 persons participated in survey estimates extracted from diary data: 1,026 with a recall diary and a self-recorded diary; 2,003 with only a recall diary (of them, 6 were with "out-of-scope" activities on the day after); 53 with only a self-recorded diary (of

(\*) The overall non-response rate of persons is very similar when calculated according to different assessments of the average size of households who did not respond at all (for which the number of persons aged 14 and over was not known).

them, 11 with "out-of-scope" activities on the day before). This

them, 11 with "out-of-scope" activities on the day before). This means that only about one-third of those who filled out a recall diary returned a self-recorded diary by post.

#### 5. Diaries that participated in survey estimates

4,843 diaries were obtained from persons, each having one or more diaries, for one or two week days, or for one week day and for two weekend days (Friday and Saturday).

3,562 were recall diaries of "yesterday" (74%) and 1,281 self-recorded diaries of "tomorrow" (26%).

The distribution of the diaries used for the survey estimates, by day of the week and by type of diary, was as follows:

Type of diary	Total diaries	Day of week						
		Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
Recall	3,562	665	700	624	477	22	525	549
Self	1,281	7	204	264	44	411	186	165
Total	4,843	672	904	888	521	433	711	714
Total	100.0%	13.9%	18.7%	18.3%	10.8%	8.9%	14.7%	14.7%

As the table shows, the distribution of diaries by types over days of the week is not uniform. Fewer diaries were obtained for Sundays and Wednesdays, as expected, because it was not intended to obtain self-recorded diaries for these days.

For Thursdays, fewer diaries were received than for other days, despite the fact that self-recorded diaries were left for interviewees on two days of the interviewing. This is due to the low response rate by post.

For the same reason and also because on Sunday the enumerator had a greater workload since two recall diaries had to be recorded, fewer persons were interviewed and the reinforcement expected for weekend days was not achieved.

#### D. Coding and Editing

All verbal descriptions of the activities recorded in the diaries (either by the enumerators according to the respondents' description, or self-recorded by the respondents) were coded in the central office. Diaries which included fewer than 5 activities were voided during editing.

The classification of the activities of the Israeli survey was prepared on the basis of the recommendations included in "Guidelines for Time Use

Data Collection" by Andrew S. Harvey, 1990, published by the International Association for Time Use Research. However, the International Classification suggests 40 categories; they were extended for the Israeli survey to 90 categories, to reflect the way of life and the purposes of the survey in Israel (see Appendix C).

The categories were grouped into 14 main groups. In each main group, one category was designated for travel related to the activities included in the group. For example, the activities group "paid work" includes a category for travel to and from work. Thus, travel was coded by purpose.

For additional explanations, see "Definitions and Explanations", Ch. 3, section C.

Despite the importance of coding of activities in the Time Budget Survey, there were cases where the information was insufficient, mainly in the self-recorded diaries.

Below are several examples of coding problems.

- a. Paid Work or Volunteer Help - no question about payment was asked in order to distinguish between activities of paid work and volunteer help, so there were cases where judgement was used in choosing the correct code.
- b. Paid Work or Studies - religious people at Jewish religious schools may combine studying with teaching ("I studied and taught holy studies"). In these cases it had to be decided how to divide the time between the two activities.
- c. Shopping or Entertainment - spending time at shopping malls has become a type of entertainment which may combine shopping, eating, entertainment at a restaurant, etc. In self-recorded diaries, details of type of activity at the mall were not always provided ("I was at the mall").
- d. Details of Domestic Work - housewives combine activities such as cleaning, cooking, washing dishes, etc. and cannot always indicate the time spent on each activity. For such cases the category "Domestic Work with no further details" was used.
- e. Volunteering in Organizations - for political party activities (e.g. at elections) there was no indication whether this was for payment or voluntary.
- f. Religious activity or Social activity or Personal Care - Sabbath and Festival meals in religious families are not "eating and drinking" only. The detailing necessary for coding was not always indicated (blessings, singing, reading, etc.). In any event, the religious-traditional significance of the festival meal is lost ("activity significance" was not investigated in the survey).
- g. Reading Books or Newspapers - often the type of reading was not indicated ("I read") and it was necessary to use judgement in choosing a code.

Most of these problems occurred, as mentioned above, in self-recorded diaries (which comprised about one-fourth of all diaries). The enumerators who filled out recall diaries were instructed to obtain information enabling more accurate coding of the activities.

The diaries and the questionnaires after coding were keyed and underwent computerized logic checks and the errors found were corrected.

#### E. Weighting Procedure

In order to obtain estimates for the whole survey population, a weight (an "inflating coefficient") was calculated for each respondent corresponding to the number of persons in the population he represents. The weighting procedure is intended to improve the survey estimates, i.e. to reduce sampling variance and possible biases.

- a. Reducing sampling variance - due to the limitations of the available sampling frames, it was possible to draw a sample stratified only by characteristics of localities (size, type and socio-economic index of each locality), while controlling to obtain maximal geographic dispersal within the sampled localities. If it were possible to draw a stratified sample by characteristics of the persons themselves (like sex, age, etc.), sampling variance of survey estimates would be smaller. Since this is not possible, instead the sample is adjusted using post-stratification in the weighting procedure for known distributions of persons by several characteristics. By this, the sampling variance is reduced approximately to what it would have been had a stratified sample been selected in advance according to these characteristics.
- b. Reducing non-response bias - the non-respondents may differ in characteristics and in norms of time use from those who participated in the survey. The weighting procedure is intended to reduce (although it may not eliminate) the bias due to differential non-response rates among different population groups, under the (reasonable) assumption that within groups, the non-respondents are more similar to the respondents than to the overall population.
- c. Bias due to the sample's imbalance over time - from the outset, the diaries were not distributed evenly over days of the week (see section B, above). In addition, due to constraints of field work, a uniform distribution of the investigation days by days of the week was not obtained. This was also true for the sub-periods of the survey period, despite the fact that to start with, the gross sample of total dwellings was controlled so as to be uniformly distributed over the whole survey period.

Since it is reasonable to assume that there is a difference between activities on different days of the week and in sub-periods of the survey, the weighting procedure corrected (partly) the distortion in the sample with respect to time.

The number of characteristics according to which the sample is adjusted during the weighting procedure is limited by the sample size, especially



if a cross-adjustment is made. Alternatively, the set of weights can be determined in a multi-stage process using multi-dimensional raking, by which the weighted sample is adjusted, iteratively to each of several known distributions by selected variables, separately. This technique is also limited in the number of characteristics that can be used, although it enables adjustment for more characteristics than the cross-adjustment method.

The sets of weights were determined separately for estimates derived from the questionnaires and the diaries. For diaries it was necessary to balance the distribution by days of the week at the expense of adjustments for other characteristics, while for questionnaires, a larger number of characteristics could be used with a more limited adjustment by sub-period. Furthermore, determining a common weight would have required the voiding of several completed diaries and questionnaires because both a diary (at least one) and a questionnaire were not received from all persons.

The adjustment variables to be used and to what extent they should be detailed were determined for each weighting procedure, in accordance with the sample size.

For the questionnaires the weights were determined separately for three groups: Jews, immigrants and non-Jews. In each, preliminary correction factors were given in order to balance the sample over a limited number of sub-periods, by sex and age groups. In addition, correction factors were given to special groups that were not adequately represented in the sample investigated (soldiers, pupils residing in boarding schools and residents of student dormitories, absorption centers and protected dwelling for the elderly). Afterwards, the raking procedure was applied.

For diaries, for Jews (including immigrants), the raking procedure was applied, controlling the chosen characteristics, separately, for each of the seven days of the week. For non-Jews, due to the size of the sample, the raking procedure was applied only once, in which the seven days of the week participated as the primary adjustment variable with no cross controlling with the other adjusted variables.

In order to adjust the sample to the whole population, all the diaries were used, including those with various "out-of-scope" activities whether reported in the field or whether imputed in order to adjust them (partially) to external data.

The adjustment variables that participated in the weighting process of the questionnaires and the diaries (in addition to the seven days of the week for non-Jews) were:

1. Sex by age group: both for questionnaires and for diaries.

2. Size and age composition of the household:

for Jews - for questionnaires and diaries;  
non-Jews - only for questionnaires and only by size;  
new immigrants - this variable was not used.

3. Labour Force characteristics

For questionnaires:

employed persons full- or part-time - by occupation group;  
not-employed - by past occupation group;  
not in labour force - by age group.

For diaries:

persons employed full-time - by sex;  
persons employed part-time - by age group;  
not-employed - by age group;  
not in labour force - by age group.



4. Years of Education:

Both for questionnaires and diaries: for questionnaires and for diaries, for Jews aged 18 and over, with consideration for continent of birth.

5. Geographic characteristics: for questionnaires only.

for Jews - each of the 11 largest cities separately;  
urban localities by region and socio-economic index;  
moshavim - by district;  
qibbuzim (with no additional breakdown);  
other rural localities (with no additional breakdown).

for non-Jews - Jewish localities;  
non-Jewish localities - by size;

for new immigrants by district.

6. Period of Time: only for diaries, for Jews and non-Jews separately..

Adjustment variables were used in greater detail for questionnaires than for diaries because of the smaller sample size for each day of the week. In each set of weights, the adjustment variables were more detailed for Jews than for non-Jews and very limited for immigrants.

The distribution of persons by characteristics to which the survey data were adjusted are based on current demographic data of the CBS and on improved family estimates from the current Labour Force Survey.

### 3. DEFINITIONS AND EXPLANATIONS

#### A. The Survey Population

The population to which the survey estimates relate includes persons aged 14 and over who reside permanently anywhere in Israel and in any type of locality. Israeli residents staying abroad continually for more than one year were excluded, but tourists and temporary residents staying in Israel for more than one year, were included. Diplomats, however, irrespective of the length of their stay, were not included in the survey population. The survey population also includes residents of absorption centers for new immigrants, caravans and other temporary housing, student dormitories and the elderly who live in protected tenant centers. Pupils of regular boarding schools were also included in the survey population.

At the outset, several groups were excluded from the survey population:

1. new immigrants who at the time of the interview had been in Israel for less than one year;
2. non-Jews residing in east Jerusalem;
3. Bedouins residing outside localities;
4. institutional residents (e.g. old age homes, prisons, institutions for the disabled, etc.);
5. patients hospitalized for more than one month.

#### B. The Period to which the Survey Estimates Relate

The period to which the survey estimates relate corresponds to the period that the survey was conducted (November 1991 - April 1992), but is dependent on the reference periods to which the survey data were collected.

Data on the time allocated for different activities were recorded in each diary for one full day, 24 hours - beginning at 4:00 AM. All days during the survey period were covered in the sample, so that estimates based on the diary data relate mostly to the winter months (November 1991 - April 1992).

Estimates of the frequency of participation in various activities were obtained from the questionnaire data and for different activities, the reference periods were of different length. Thus, estimates based on data investigated regarding the week before that of the interview or regarding the past month, relate mostly to winter months (November 1991 - April 1992 and October 1991 - March 1992, for a week and for a month, respectively).

Estimates based on data investigated regarding three months before the interview cover the end of the summer, the autumn and the winter. However, the eight months covered participated in the estimates with varying weights. The period October 1991 - January 1992 is represented by a high weight, September 1991 and February 1992 by a medium weight and August 1991 and March 1992 are represented by a low weight (the ratio between weights is 1:2:3).

Some of the estimates based on data regarding a year cover all the seasons of the year and every month, regardless of the year, is represented in the estimates equally.

However, the 15 months covered (November 1990-March 1992) are not equally represented in the estimates. The months in the middle of the period (April 1991 - October 1991) have the highest weights and the remaining months have weights that decline the closer the months are to the extremes of the period. So, for example, November 1990 has a relatively low weight but this is "offset" by the relatively high weight of November 1991. So that altogether, the month of November has the same weight as months in the middle of the period (the ratio between the weights of the different months is 1:2:3:4:5:6).

It should be noted that the period of the Gulf War is represented in the survey estimates based on investigation for one year (with relative weights of 2 and 3) since January and February 1991 are included in the year related to.

### C. Dairy Activities and Types of Estimates

Activity - the main activity performed in an interval of 15 minutes during the day (from 4:00 - until 00:30) and for 30 minutes during the night (from 00:30 until 4:00), not including subsidiary activities if they were done simultaneously. Therefore, the estimates reflect time allocation for main activities and do not represent all the time spent on activities usually done while involved in a main activity (such as listening to the radio). In addition, activities done frequently but for short periods (like phone conversations) are not fully represented in the estimates.

Type of activity - 90 detailed groups of types of activities were determined (see Appendix C). Table I presents the estimates by 80 groups of activities. Some tables present estimates by a 37 group aggregation and in all the tables, estimates are presented by 14 main types.

It should be mentioned that "out-of-scope" activities (if a person was in the military, or was hospitalized, or was on vacation in Israel, or was abroad) were not included in estimates on time allocation if they were done over a full day with no detailing of activities done in that framework (sleeping, eating, etc.). If activities, such as these were done for part of the full day they were included in the time allocation estimates and were classified with the appropriate regular activity, except for "military" activity which was included in the "Residual".

Total work - the sum of "paid work" and "unpaid work".

Total unpaid work - the sum of "domestic work", "shopping, services and errands", "child care" and "helping and volunteering".

Total leisure - the sum of all groups of leisure activities.

"Residual" group - includes "military" activity done during part of a full day, activities that did not fit into any other group and activities "unknown" when, for a specific period, no activity was reported (the amount of "unknown" was small).

Average daily time (in minutes) spent on activities per person is calculated as an average for all persons in the survey population, including those who did not spend time on the activity, but excluding those involved in "out-of-scope" activities during a full day. These averages express the average time spent on various activities by the population as a whole per full day of 24 hours (1,440 minutes).

Average daily time (in minutes) spent on activities per person who participated in activity is calculated as the average of all persons who spent time on the activity. These averages express the average amount of time spent, on an activity when the activity is performed.

Percent of participants for each activity is also presented as an average per full day and expresses to what extent, on average, a particular activity is engaged in. For example: (a) let us assume that 35% of the total population engage in sport activity and each person engages in this only once during a week. The average per day would be 5%; (b) the percent of people who usually work would be higher than those who actually worked, on average, per full day. This is because some people are absent from work for various reasons. Furthermore, when considering an average for the seven days in a week, it is obvious that most people do not work on each of the seven days of the week.

#### Averages by Groups of Days of the Week

Average over all days of the week;  
Average per weekday (Sun.-Thurs.);  
Average per Friday;  
Average per Saturday.

#### Note:

There is no significance in summing up these averages and percents for various activities.

#### D. Questionnaire Data and Types of Estimates

Participation in activity - at least once during the reference period. The frequency of participation in various activities is presented for each of the various time periods. For some of the activities, participation was investigated for one period (e.g. reading newspapers last week). For certain activities, participation was investigated for two periods (e.g. entertainment out-of-home or engagement in sports were investigated for one month and for a year). A number of activities were also investigated for most recent participation during the year (e.g. domestic excursion with lodging).

#### Note:

A distinction should be made between "participation in activity" as estimated according to questionnaires and "participation in activity" as estimated according to diaries.

Number of Hours / Listening / Watching / Engaging in Hobbies:

Less than one hour

1-2 hours - at least one hour and less than three hours

3-4 hours - at least three hours and less than five hours

5+ - at least five hours

Listening to radio and watching television on Sabbath - not including Saturday night.

Weekend - for Jews: Friday night, Saturday and Saturday night; for non-Jews: the weekend was determined by the respondent.

Television - including cable television (not including movies on video).

Cinema films on video - not including movies and programmes recorded from television or family events that were videotaped.

Daily newspaper - a daily newspaper in Hebrew or another language, including supplements.

Periodicals - including weeklies, monthlies or other periodicals, whether they are published in Israel or abroad (not including weekly supplements to a daily newspaper and professional journals used for studies or work).

Books and their types - books of all types (fiction, biographies, history, art, religious, etc.) excluding textbooks and professional books used for studies or work.

Members of a library - members of a public library as well as those who are not members but may borrow books from a school, work or other library.

Places of entertainment out-of-home:

Theatre - show, musical (excluding amateur performances).

Concert - classical, modern, jazz and opera performances.

Dance performance - classical or modern (excluding folk dancing).

Entertainment show - sing-along, individual performer, singing group, folk dancing group.

Museums - all types, except art galleries (excluding visits for other purposes, e.g. museum library, movie, etc.)

Sports competition - attending a sports competition (excluding watching on television).

Restaurant, cafe - including pub, bar, etc. for entertainment purposes.

Other place of entertainment - zoo, art gallery, circus, fair, etc.

Social framework (of the visit/participation):

Alone

Only with family (spouse, parents, children, other family members)

With family and friends

Only with friends (acquaintances, neighbors, etc.)

With spouse - with or without others, meaning, a partial group of the two groups "Only with family" and "With family and friends" (spouses may be unmarried).

Visit to community centre - participation in activities organized by the community centre and conducted in the centre's framework or out of it (excluding activities as a lecturer or a counselor).

Visit to friends, family - visit to friend's or family's home, also including participation in events, such as circumcision, wedding, etc. that took place at home or at a hall.

Engagement in sports activity - active engagement in various frameworks, except for as part of a school or university curriculum.

Domestic excursion without lodging - an excursion lasting at least five hours, without lodging out-of-home, except school excursions or excursions for supplementary training (excluding excursions in the course of work of tour guides, drivers, etc.).

Domestic excursion with lodging - excursion, convalescence, recuperation, vacation, youth camp, visit to relatives, etc. on condition that it included lodging out-of-home (excluding school trips or trips in the course of work of tour guides, drivers, etc.).

Studies for vocational training or supplementary training - courses and study days (not including courses in a military framework).

Length of course (for training or supplementary training) - number of hours of study in course, according to course syllabus, without consideration of whether the person attended all the lessons.

Courses (as a hobby) - which are not vocational training or supplementary training, including activities at school that are extra-curricular, and study with a private teacher.

Volunteer activities - permanent help without pay (to immigrants, to elderly, to children, etc.) privately or through any organization).

Percent of participants in activity from population - calculated from the total population or from a sub-group (e.g. total men, total women).

Percent of participants in specific activity from participants in general activity - is calculated regarding the detailing of activities from among the participants in the activity (e.g. the percent of those who read one book from among those who read books). These percents are calculated for the whole population and for sub-groups of the population (e.g. Jews and non-Jews).

Participation in activity "Unknown" - is included in total population. Therefore, percents of participation for each activity from the total population sum up to slightly less than 100%. The percents calculated for a specific activity from participants in activity usually sum up to 100% since the estimates were calculated after deducting the "Unknown".

Number of persons in survey population - estimates of the population's size in thousands (presented only from population groups from which percents were calculated, for example, total men and women or total men and women who read books).

Note:  
The size of population groups is more accurate in Tables 17-50. In Tables 1-16 (based on the diaries) these estimates are less accurate and in most of them, are deficient, since they do not include persons who filled out a diary with one "out of scope" activity for the whole day (e.g. military activity, vacation, hospitalization).

## E. Explanatory variables

Population group - most tables present data for the whole population and for Jews. When no significant differences were found, tables are presented for the whole population or for Jews, by the issue at hand. For non-Jews, data were only presented in a few tables and because of the small sample size, these too, are subject to high sampling errors.

Level of education (Tables 12, 13, 19, 20) - the variables were sorted by total number of years of education in all schools. Among persons with 13 years of education or more, a distinction was made for persons with an academic degree and among persons with 9-12 years of education, a distinction was made for persons with a matriculation certificate. Non-Jews with 13+ years of education comprised a small group in the sample and therefore, were only included in the appropriate total columns.

Employment status (Tables 14, 21) - a distinction was made between "Employed" and "Not employed"

Employed - everyone who worked at least one hour during the week preceding the day of the interview, in exchange for pay, earnings or other compensation; all workers in qibbuzim; family members who worked without pay in a family business more than 15 hours a week; all persons temporarily absent from work; including civilian labour force and persons serving in the permanent army (even though they are not in the civilian labour force); not including housewives or volunteer workers.

Full-time - usually worked 35 hours or more per week

Part-time - usually worked less than 35 hours per week

Not employed - including all those who serve in the standing army (who do not belong to the civilian labour force) and the "unemployed" who are part of the civilian labour force, meaning persons who did not work but actively sought work during the last week. The "Not employed" were sorted by reasons given for their non-employment. The group "work seekers" includes persons who sought work in the preceding week or the year preceding the survey period and did not work in the last week (this classification differs slightly from the usual method used in the Labour Force Surveys of the Bureau).

Health Problems (Tables 15, 22) - includes only those whose subjective assessment is that they have health problems (one or more) or a disability which interfered with day-to-day life. Only health problems



not expected to pass within six months were included. Only persons who responded that these health problems greatly interfere in activities at home or in travelling or walking out-of-home are included here.

The tables present data only for persons aged 30 and over. At younger ages, a relatively low percent of persons were found to suffer from health problems and, due to sampling limitations, is not significant.

Measure of religiousness (Tables 16, 23, 50) - each respondent subjectively chose the appropriate definition: ultra-orthodox, religious, traditional-religious, traditional-not so religious, not religious. Ultra-orthodox, who comprise a relatively small group, were included in the tables with the group of religious. Data in these tables relate only to Jews.

Performance of religious deeds - this subject was only investigated for the Jewish population and performance of deeds was determined according to the persons's subjective response. The respondents were not asked if they perform the deed for religious reasons. Therefore, it is conceivable that among those who responded that they do not watch television on the Sabbath, for example, there are those who do not watch at all - due to lack of interest or lack of a television and not necessarily for religious reasons.

#### 4. RELIABILITY OF THE ESTIMATES

As with all estimates based on a sample survey, the estimates presented here may be subject to errors of two kinds: sampling errors and non-sampling errors:

##### A. Sampling Errors

The survey sample, according to which the survey estimates were obtained, is one of many possible samples of the same size that could have been selected by using the same sampling method from the survey population. Sampling errors result from the fact that data was only collected from a sample and not from all persons aged 14 and over who belong to the survey population.

Based on the specific sample of this survey and according to the weighting method used, an estimate (percent or average) was obtained for the corresponding census value that would have been obtained had the whole survey population been investigated under the same conditions.

The sampling error of an estimate expresses the average difference between all the different estimates which would have been obtained from all possible samples of the same size with the same sampling method, and the census value.

The sampling error of a specific estimate will be greater, the greater the variance of the variable in the population upon which the estimate is based. This error is also dependent, of course, on the size of the sample. Estimates based on relatively small samples, especially for

small sub-groups in the population, are subject to higher sampling errors. At the same time, sampling errors of estimates based on samples identical in size, but selected with different sampling methods and obtained using different weighting procedures may be very different from one another. Sometimes, it is possible to obtain greater accuracy from a small but more efficient sample than from a large one.

In many cases, the estimates need to be evaluated by the relative precision, i.e. by using the relative sampling error which is the ratio of the sampling error and the estimate itself. Thus, for example, an estimate of the percent of participants in a frequent activity is subject to a high absolute sampling error but its relative sampling error is low, whereas an estimate of the percent of participants in a very infrequent activity is subject to a high relative sampling error even though its absolute sampling error is low.

Using the sampling error of an estimate, it is possible to build a confidence interval for the estimate. This interval contains the census value at a pre-determined level of confidence and will be wider the higher the sampling error is. The higher the level of confidence that is required, the wider will be the range of values that the confidence interval will cover.

The sampling errors for the survey estimates and their respective confidence intervals can be estimated from the sample itself. For certain surveys, it is possible to present sampling errors together with the estimates, while for other surveys it is possible using appropriate rules to derive tables of sampling errors for some of the estimates (mostly percents and frequencies) with a reasonable degree of approximation.

However, this was not the case for this complex survey and sampling errors are not presented for all the estimates in this publication, due to numerous technical difficulties and the considerable expense involved.

Nevertheless, to give the reader some indication of the measure of precision of the estimates in terms of sampling errors, a methodological appendix (Hebrew only) is supplemented to the introduction. This methodological appendix includes selected estimates that are presented with sampling errors at a confidence level of 95%, with explanations and examples of their use. The examples in the appendix should not be used to draw any conclusions regarding sampling errors of other estimates presented in the other tables of this publication.

## **B. Non-sampling Errors**

The estimate obtained and its sampling error make it possible to learn something of the census value. However, even if a census had been conducted, the results may well have differed from the true value of the population due to the influence of non-sampling errors.

The main factors that cause non-sampling errors in this survey are:

1. Non-response - in about 15% of households in the sample no one was investigated. In addition, about 14% of persons in households that were investigated did not fill out diaries or questionnaires (see details in "Survey Methods", Ch. 2, section C).

Since this group of persons may differ in its characteristics and especially in norms of time use from the group of persons who did participate, survey estimates may be biased. For example, it is possible that the persons who did not answer due to repeated absence from their homes engaged in different activities from those who were at home. It is also reasonable to assume that persons who could not cooperate due to illness spent more time on activities related to their illness and less time on activities out-of-home than persons who could cooperate. The weighting method used in the survey (see "Survey Methods", Ch. 2, section E) serves to reduce these biases considerably, but not completely.

2. Response errors - survey estimates are based on the individuals' answers, most of which were dependent on memory (see "Survey Methods", Ch. 2, section B).

Data collected through questionnaires relate to events that took place in the past, in a defined reference period (last week, last month, last three months, last year).

Therefore, memory may affect the quality of answers. For example, it is possible that events that took place prior to the reference period were included by mistake and led to estimates biased upwards. On the other hand, it is also possible that certain events were forgotten and not reported, and as a result, the estimates are biased downwards.

The detailed information about activities was collected using information recorded in diaries, most of which was subject to memory effect. This information was mostly obtained through recall by the interviewer who interviewed the person about the previous day (or two).

Only about one-fourth of the diary data was obtained from persons who completed self-recorded diaries left for them to fill out currently. But, some of the self-recorded data were not recorded while the various activities were being carried out, and thus, were also subject, to some extent, to memory effect.

Other response errors in the questionnaire data and in the diary data could have occurred from misinterpretation of the questions, or from not following instructions on keeping the diary.

It is possible that some persons "got tired" during filling out the diary, especially those investigated on more than one day or those who were involved in many activities, which led to careless or inaccurate recording.

Sometimes, the necessary information was not obtained because the details recorded in the diaries for the activities were not complete, and similarly, in some of the questionnaires answers were not obtained for all the questions.

3. Data collection methods - in accordance with the recording method in the diaries, the data collected were for activities in periods of 15 minutes (or 30 minutes in the night hours). Thus, the estimates of average time spent on various activities are based on multiples of these periods, while the actual time may have been more or less. Thus, for example, for activities which took less than 15 minutes and were reported, estimates on length of time are biased upwards.

For each period of time, only the main activity was recorded. Therefore, estimates of participation percentage and of average time regarding activities done for a short period of time, such as phone conversations, light meals, washing, etc., suffer from downward bias. The same is true for subsidiary activities done simultaneously with other activities, such as listening to radio, eating while watching television.

4. Representation of days of the week - due to field work constraints, days of the week were not uniformly represented in the sample. It was impossible to determine in advance which days the persons would report on in the diaries.

Although instructions were given to the field regarding uniform dispersal of investigation over days of the week, no uniform representation was obtained. Especially was this the case for Thursdays, for which data were only collected through the self-recorded diaries (despite the fact that they were distributed to a sample that was doubled in size (see "Survey Methods", Ch. 2, section B). Since the response rate for these diaries was low, the representation of Thursdays was lower.

Also, since survey data was collected directly from each person (and not through proxy), investigations of those absent from their homes were postponed, and so too, of those requesting postponements for various reasons.

Although the weighting procedure adjusted for the uneven representation of the days of the week, the estimates may still be biased. This is as a result of the fact that for those who postponed their investigation, there is a correlation between their not being investigated and the nature of the activities on the days on which they were to be investigated.

5. Processing errors - the various processing stages, like keying in questionnaires, coding activities and editing procedure are also subject to errors which may influence the reliability of the estimates.

As a result of the different types of non-sampling errors, sometimes estimates were obtained which do not seem to be reasonable. For example, a figure was obtained which suggests that on the Sabbath, about 5% did

not participate in eating or drinking. This does not indicate that they fasted for 24 hours, but that this activity was part of a wider activity (hosting, party, entertainment at a restaurant, etc.). Another example is that among women it was found that every day, an average of about 11% did not spend any time on washing and dressing. This is probably because these activities take a very short time or because the activity was omitted by mistake.

The effect of non-sampling errors on the survey estimates is very difficult, or even impossible to assess. However, it is important to note that sometimes the various biases arising from different sources have opposite effects and may partially offset each other.

## Activities Code List (in diaries)

<u>Code</u>		<u>Code</u>	
	<b><u>Paid work</u></b>		<b><u>Education</u></b>
01.	Main work out-of-home	44.	Regular studies (at school/university) toward certificate or diploma
02.	Work at home (as/for main job)	45.	Other studies
03.	Travel at work	46.	Homework, preparation for examinations
04.	Breaks (meals, coffee, other)	47.	Travel: education
05.	Second job		<b><u>Entertainment</u></b>
06.	Looking for job	48.	Sports events/matches (as a spectator)
07.	Travel to/from work	49.	Cinema films
	<b><u>Domestic work</u></b>	50.	Theatre
08.	Cooking, baking, food/drink preparation	51.	Concert (orchestra or recital), opera, ballet
09.	Dish washing	52.	Light entertainment, pop/rock music, singing
10.	Laundry, ironing, folding, mending	53.	Museums, art galleries, exhibitions
11.	Cleaning and tidying the dwelling	54.	Discotheque, pub
12.	Home repairs, maintenance	55.	Cafe, restaurant
13.	Gardening, pet care	56.	Other entertainment
14.	Car care (at home)	57.	Travel: entertainment
15.	Other/NS domestic work		<b><u>Socialising</u></b>
	<b><u>Shopping, services and errands</u></b>	58.	Visiting family
16.	Everyday shopping	59.	Visiting friends, neighbors, etc.
17.	Shopping for durable household goods	60.	Hosting at home
18.	Personal care services (hairdressing, etc.)	61.	Parties, celebrations
19.	Medical care services- self (medical clinic, dentist, etc.)	62.	Club, youth movement, youth organization
20.	Government/public/financial services	63.	Conversations (except with children)
21.	Repair services (ordering, waiting, receiving)	64.	Phone conversations
22.	Other errands	65.	Correspondence
23.	Travel: shopping, services and errands	66.	Travel: socialising
	<b><u>Child care</u></b> (children of household/family)		<b><u>Hobbies and sports</u></b>
24.	Baby/child care (physical)	67.	Swimming pool, seaside
25.	Helping children with homework, with learning	68.	Active sports, physical activity
26.	Reading to children	69.	Walking
27.	Playing with children	70.	Walking in town (streets and sites)
28.	Watching television with children	71.	Excursion/activity in nature (not by car)
29.	Other (inc. conversations with children)	72.	Excursion by car
30.	Travel: child care	73.	Sewing, knitting
	<b><u>Helping and volunteering</u></b>	74.	Hobbies and other crafts
31.	Helping/caring for adults of family	75.	Playing, singing, acting, dancing, games
32.	Helping/caring for another household (not family)	76.	Other
33.	Volunteering, activity in organizations	77.	Travel: hobbies and sports
34.	Travel: helping and volunteering		<b><u>Media and communication</u></b>
	<b><u>Religious activity</u></b>	78.	Listening to radio
35.	Praying and other religious activities	79.	Watching television
36.	Travel: religious activity	80.	Watching video
	<b><u>Personal care</u></b>	81.	Listening to records, tapes
37.	Washing, dressing, etc.	82.	Reading daily newspapers
38.	Sleeping	83.	Reading magazines, periodicals
		84.	Reading books
39.	Resting and naps	85.	Other activities related to media and communication
40.	Eating and drinking	86.	Travel: media and communication
41.	Self-medical care		
42.	Ill in bed (without any other activity)	87.	<b><u>Other leisure activities</u></b>
43.	Other personal or private activities		
		88-90.	<b><u>Residual</u></b> , incl. unknown
			- n.e.c. (not elsewhere classified)
			- military activity (for part of the day)