



TIME USE CHANGES

IN FINLAND IN THE 1980s

Iiris Niemi – Hannu Pääkkönen





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Inquiries:
Iiris Niemi
Hannu Pääkkönen
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Pasilan VALTIMO

PREFACE

The Central Statistical Office of Finland conducted its first time use study in the autumn of 1979. New material was gathered in the period from 1 April 1987 to 31 March 1988, for the purpose of studying the changes in time use structure and for a more rounded-off view of how different population groups use their time over the entire year.

This report, being the first report of the research project, gives a picture of the changes that have taken place in the structure of time use during the period of eight years since the first time use study. This comparison includes only that part of the sample that relates to the autumn. The data for the whole year will be published later on.

The text of this publication is written by Iiris Niemi and Hannu Pääkkönen (the chapter on Basic Structure of Time Use and the chapter on Changes in Free Time). Paavo Väisänen has planned the making of the sample and written the chapter on the Sampling Design. Seppo Laaksonen has given advice on the analyses involving population structure standardisation and written the chapter on Standardization in the Quality Description. Jarmo Lauri was in charge of the computer planning and implementation. Veli Rajaniemi has drawn the figures for the publication.

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Olavi E. Niitamo

Päivi Keinänen

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TIME USE CHANGES IN INDUSTRIALISED COUNTRIES

Time use studies are made for the purpose of finding out how people use the 24 hours of the day, how much time is used for sleep and other personal needs, how much for gainful work and domestic work, and how much is used for different kinds of free time activities. The unit of measurement used is the time spent on the activities, but the object of the study is people's behaviour and changes in behaviour.

The first time use studies were made already in the late 19th century, and focused on the living conditions of factory workers in Britain and France. The families kept a record of their incomes and consumption. These records, however, proved to be of limited use for the purpose of drawing conclusions concerning the human factors and motives effecting consumption. Researchers turned to the study of consumption of time, in addition to the consumption of money. This gave rise to a much more rounded picture of people's behaviour. (Szalai 1966).

Changes in time use can be studied from the 1920s, the time of the first comparable studies. Changes in time use have been studied in the Soviet Union beginning in the 1920s and in the United States and the United Kingdom beginning in the 1930s (Zusanek 1980, Robinson & Converse 1972, Gershuny 1983).

Time use research was not conducted extensively until the end of the 1960s, which saw a comparative study of 12 countries (Szalai 1972), a project involving both market economies and centrally planned economies. The most noteworthy achievement of the project was to unify research methods and classifications, paving the way for comparable studies in different parts of the world.

In the 1980s, a time budget archive was founded at the University of Bath, where the data files of studies carried out in different countries are recorded for the purpose of international comparisons of changes in time use. The archive contains data on studies made in eight countries in the period from the 1960s to the 1980s. (Gershuny 1988).

Changes in time use can thus be examined on the basis of studies carried out in different countries over a period of 50 years. Working hours changed very little in the period from the 1920s up to the 1960s. The time used for gainful employment was roughly the same in the early 1960s as in the 1920s and 1930s. Working hours were at their longest in the period after the Second World War.

The time used for domestic work remained the same in the Soviet Union and increased a little in the United States up to the mid-1960s. Gershuny (1983) noted that domestic work time increased for English middle-class housewives when they had to manage without their domestic help. In England, the time used for domestic work started to decline in working-class families in the 1950s, but not until the 1960s in middle-class families.

The most noticeable changes in time use took place at the turn of the 1970s. The introduction of the five-day work week released time to be used for other purposes. Men began to take a greater part in domestic work, whereas women used less time on routine domestic work activities such as cleaning, cooking and dish washing. One Norwegian study showed that some of these routine activities were taken over by the men. (Lingsom & Ellingsaeter 1983). A study made by the Multinational Longitudinal Time Budget Archive reveals of the different kinds of domestic work, the time spent on child care and shopping has increased (Gershuny 1988).

The trend towards shorter working hours began to slow down in many countries in the later part of the 1970s. In some countries, such as Hungary, there is actually an increase in working hours (Idömerleg 1977 es 1986 tavasza, 1987). The time spent on domestic work has continued to decrease for women and has increased somewhat for men (Gershuny 1988). In Latvia, the differences between those who make the least amount of domestic work and those who make the most have levelled out (Eglite & Zarins 1988).

There has been a change in the total hours worked (including both gainful work and domestic work). In Norway, women's gainful employment increased during the 1970s as women more readily took up gainful employment, whereas men's gainful employment decreased as a consequence of the reduction in the working hours. At the same time, men's share of domestic work increased. This was not the result of a significant increase in the amount of domestic work made by men. In fact, there was only a slight absolute increase. Instead, the growth in the relative share was due to the fact that women did significantly less domestic work than earlier. The structure of women's and men's total hours worked has converged. (Lingsom & Ellingsaeter 1983, 89). The same change can be seen in other industrialised countries as well (Gershuny 1988, 119).

The changes in gainful and domestic work are reflected in the amount of free time, which has increased slowly and periodically. At the end of the 1960s the increase in free time was due to the reduction in weekly working hours. In the 1970s free time has increased mainly for women whose domestic work has decreased. Men's and women's time budgets

nowadays resemble each other more closely, also regarding the amount of free time. Women traditionally have had less free time than men.

The ways of using free time have changed over the decades. One common trend can be discerned in all industrialised countries: the television's revolutionising impact on free time. This impact could be observed in the United States as early as in the 1950s. Some time later it was felt everywhere. Television brought about a decline in radio listening, cinema going and socialising (Robinson & Converse 1972).

Over the decades, free time use has changed from homecentred and outward-directed and back again. In the 1960s, free time was considerably more frequently spent away from home than in the later part of the 1970s, when people withdrew to family-centred socialising and television watching. The general trend has been an increase in passive home activities as the amount of free time increases. On the other hand, this life style has brought a revival of sports activities. (Gershuny 1988.)

In summary, the following observations can be made on the changes in time use in the industrialised countries:

- working hours decrease, but slowly
- domestic work time decreases for women and increases slowly for men
- the time used for shopping and for child care increases
- the time used for meals and sleep decreases
- free time increases and is more and more used for home-centred activities.

BACKGROUND AND IMPLEMENTATION OF THE STUDY

Research topics

The Central Statistical Office of Finland conducted its first large time study in 1979(1) . Since then, a number of changes have taken place in the society that can be believed to have led to structural changes in the time use of the population. This calls for a renewal of the time use study. A number of measures undertaken in the 1980s have resulted in shorter working hours. Time budgets can be used to study how this is reflected in people's daily lives. Are people now using less time for gainful employment, or are shorter working hours used up by overtime or an extra job?

A topic much discussed of late is that schoolchildren more readily take up gainful employment. But are schoolchildren really spending more time on gainful employment than before?

Households grow more and more mechanised. Dish washers and micro-wave ovens have become increasingly more common during the 1980s. Has this led to a reduction of the time used for household work?

In other countries, an increasing amount of time is being spent on shopping and child care. We could expect the same trend to be discernible in Finland as well.

A topic which has been discussed since the 1960s is the division of the domestic work burden between men and women. Are changes in attitudes reflected in daily behaviour, i.e. do men participate more in domestic work in Finland, too? Has there been a simultaneous reduction in women's domestic work?

Leisure activities were centred outside of the home in the 1960s, whereas the 1970s saw an increase in homecentred activities. How did things evolve in Finland in the 1980s? Has free time become increasingly privatised?

What has happened to sports activities in the 1980s? Has the resurgence of sports activities in the 1970s continued or has it reached a plateau in the 1980s?

(1) Niemi I, Kiiski S & Liikkanen M: Use of time in Finland 1979. Central Statistical Office in Finland. Studies 65. Helsinki 1986.

Home computers made their appearance in the 1980s. What has been their impact on the free time pattern adolescents? Colour television ownership is considered to increase the amount of television watching. Has this been the case in Finland, where a growing number of households have acquired colour television sets and video outfits during the past ten years?

According to the 1979 time use study the sleeping rhythm is controlled by the television programme schedule, especially the late-night TV news. Since 1981, there is a late night MTV news report at 10 in addition to the 8:30 YLE news report. Has this resulted in later bedtime hours and changed day rhythm nationwide?

These are some of the assumptions that can be made of changes in time use over the period of eight years. The present study explores if people's behaviour has changed as expected, which changes have run contrary to expectations and the extent to which the behaviour of people has remained unchanged.

Implementation of the study

The earlier time use study was carried out from September to November 1979. As seasonal influences on time use are great, it was decided to extend the period under study to cover the entire year. The material for the present study was gathered in the period from 1 April 1987 to 31 March 1988.

In the study of changes in time use, only the autumn data was used. This was done by enlarging the data for October. Data was collected in the same way as before. The greatest difference concerns sample size. In 1979 the sample consisted of 7 355 individuals. The sample for the present study totals 9 900 individuals over the whole year. The sample for the period from September to November consisted of 3 089 individuals, of which 2 406 persons or 77.9 per cent kept diaries (for further details see the chapter Quality Description). The material represents the 10 to 64 year old population. The material covering the entire year also includes persons over 65 years of age, but these individuals were excluded from the present study of time use changes, as the earlier study did not include pensioners.

The data was collected by the Central Statistical Office's interviewers. Personal interviews were used to gather background data on the respondents and for giving instructions on how to fill in the diaries. The days to be recorded were chosen using a random method.

Respondents were asked to fill in a diary for two days running. They were asked to record, in their own words, their primary activity, and what else they were doing at the same time. Record keeping was on a 10 minute-basis, and on a half-hour basis between midnight and 5 a.m. Socialising with family and acquaintances was also recorded.

Diaries were returned by mail via the interviewer to the Central Statistical Office. The autumn study material contains time use data on a total of 4 764 days. The material was encoded and registered at the Central Statistical Office, using the 1979 activity classification as a framework.

BASIC STRUCTURE OF TIME USE

The basic classification of time use commonly used employs a division into four categories (see e.g. Ås 1978, 133-135):

- necessary time related to personal needs
- contracted time related to gainful employment and studying
- committed time related to domestic work
- free time.

Personal needs relate to sleeping, eating, washing etc. Time used for work includes, in addition to actual working hours, the time used for travelling to work. Studies for qualification for a vocation or profession are considered as school attendance, whereas studies as a hobby are considered as a free-time activity. Domestic work covers household work, home repairs, child care and errands.

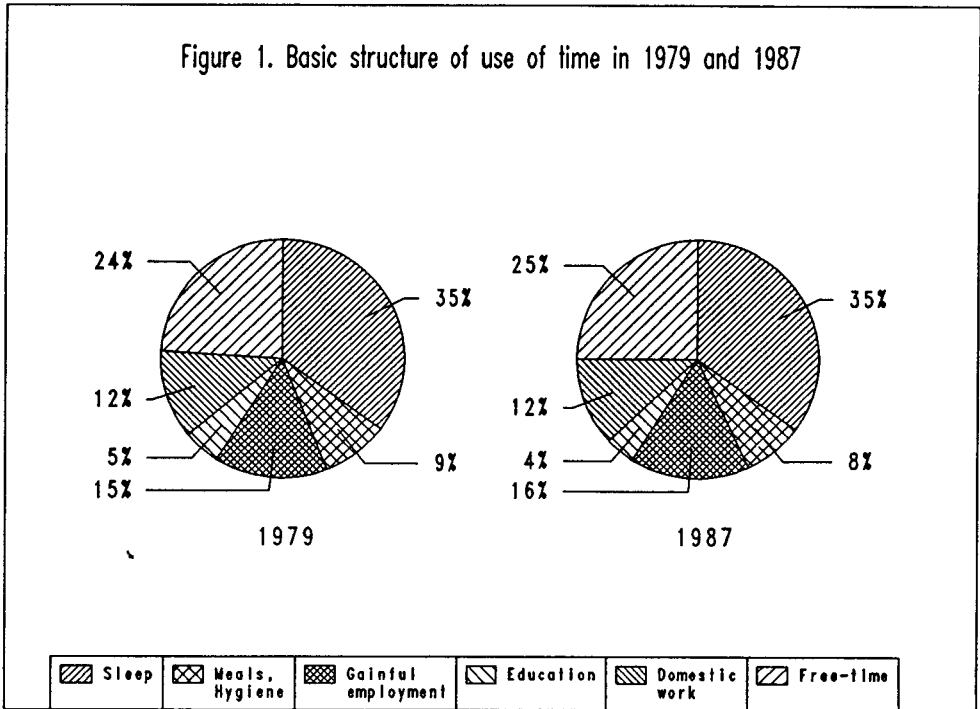
Free time is the time that remains after sleeping, eating, employment, domestic work and education have been subtracted. Free time is classified as time free from these activities.

This chapter examines the changes in time use on the basis of these basic categories of time use. The chapter also examines the changes in the population structure in the 1980s and the effects of these on time use.

Changes in the basic structure of time use

As can be seen from Figure 1, time use by the whole population remained almost unchanged in the 1980s. Personal needs take up more than 40 per cent of the time. Sleeping takes more than one third, meals and personal hygiene almost one tenth of total time. One fifth of the time is used for gainful employment and education. Domestic work takes more than one tenth of the time and the remaining one quarter is free time.

Figure 1. Basic structure of use of time in 1979 and 1987



The broad allocation of time use can be seen to have remained unchanged in the 1980s. We next examine the time used for different activities. Here we find that certain changes have occurred.

Table 1. Use of time in 1979 and 1987. Hours and minutes per day(1)

	1979	1987	Change
Sleep	8.30	8.24	-0.06
Meals, personal hygiene	2.04	1.59	-0.05
Gainful employment	3.41	3.53	+0.12
Education	1.12	1.01	-0.11
Domestic work	2.47	2.47	+0.00
Free time	5.44	5.53	+0.09
Total	24.00	24.00	

(1) The numbers in this table are averages for the whole population. E.g. time used for gainful employment has been averaged out over all individuals between 10 and 64 years of age, whether gainfully employed or not.

The greatest changes are the increase in working time and the decrease in time spent on education. The amount of free time has increased, while the time spent on sleep, meals and hygiene has decreased. However, the time spent on meals has not decreased if meals as secondary activity are taken into account. It looks like meals to an increasing extent are combined with other activities. The time used for domestic work has remained constant over the total population.

Changes in population structure in the 1980s

Changes in time use were examined above at the level of the total population. Time use however differs from one population group to the other. Changes in the use of time can thus be the result of either changes in the relative shares of the population groups or of actual changes in behaviour. For example, an increase in the time used for gainful employment can be the result of a larger part of the population being gainfully employed (structural change) or it can be the result of the gainfully employed doing longer hours than before (behaviour change). An increase in working time can of course be the result of the concurrent effect of both of these factors.

In order to examine the part played by structural change in the change in time use, we next examine the changes that have occurred in the 1980s in the population's age, family and educational structure and in the degree of participation in gainful employment.

The population has grown more middle-aged. The share of the 35 - 44 year olds has grown significantly, while the share of younger age groups has diminished. This effects both family structure and employment.

Table 2. Age structure of the 10 - 64 year old population. Figures are expressed as percentages (%)

Age group	1979	1987
10 - 24 years	31,4	27,4
25 - 34 years	23,7	21,2
35 - 44 years	16,6	22,2
45 - 54 years	15,4	15,1
55 - 64 years	12,9	14,1
Total, per cent	100,0	100,0
1 000 persons	3 584	3 662

Households have grown smaller in the 1980s. The number of households with only one or two persons has increased. The number of families with children under 18 shows a slight decrease, while the number of families with children over 18 has increased. This change can be seen both in two-parent families and in single-parent families. (Asuntokunnat ja perheet, 1988.)

Grownup children nowadays leave their childhood home at a later age than before. This is a result of extended studying time, as well as the housing shortage. Figures for 1985 show that in as many as 28 per cent of all families with children living at home, these children were all over 18 years of age (Asuntokunnat ja perheet, 1988). The interviews for the time use study indicate that boys stay longer in their parents' home than girls do.

The size of the labour force has grown by a number of 150 000 over the period of eight years. Women make up two thirds of this increase. The growth of the labour force is due both to the greater propensity of women to engage in employed work, and to the change in the age structure of the population. The number of individuals of working age has increased by 120 000. (Labour Force Survey 1987, 32)

The intensive working years are more and more clearly concentrated to the years from 25 to 54. This shows as a growing share of gainfully employed in those age groups. In the oldest age group the proportion of the gainfully employed has decreased, as men are retiring earlier than before.

The structure of the wage and salary earner population has changed in the 1980s. Since the early years of the 1980s, the number of employees surpasses that of workers (Labour Force Survey 1987, 36).

The number of students has decreased as the young age groups have diminished. The number of primary school students has diminished by seven per cent from 1979 to 1987 and the number of upper secondary school students by six per cent. On the other hand, the number of students at vocational schools and colleges has increased by five per cent and at universities by as much as 17 per cent as compared to the beginning of the 1980s. (Statistical Yearbook of Finland, 1980 and 1981; Pojat ja tytöt koulussa, 1987)

The population's educational level was significantly higher at the end of the period: In 1979, 36 per cent of the population over 15 years of age had completed an education, and in 1987 the proportion was 48 per cent (Finnish Statistical Yearbook 1980, 332; CSO, Educational statistics office).

Figure 2. The proportion of men in the labour force by age, in 1979 and 1987

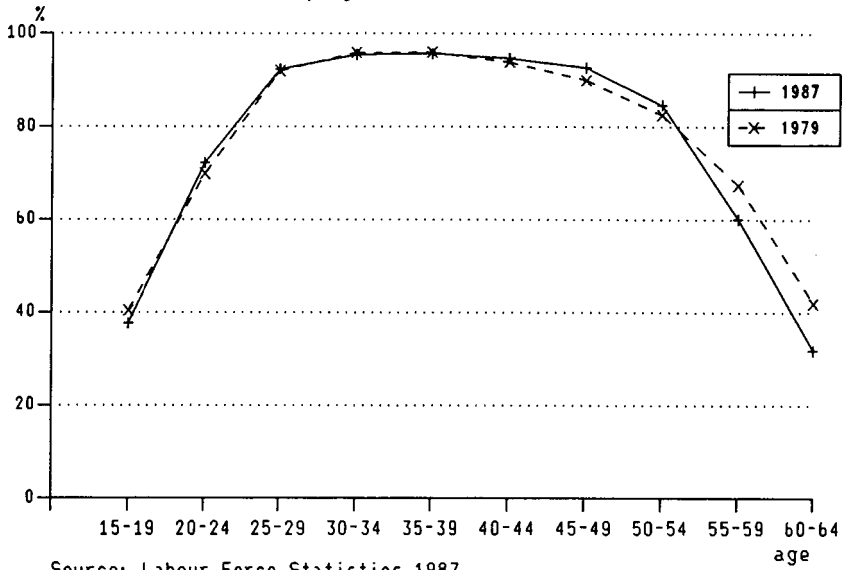
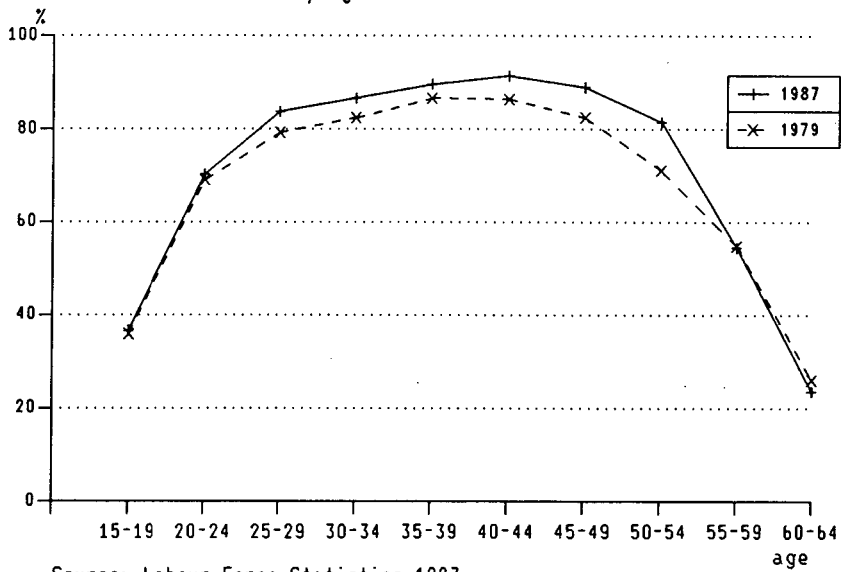


Figure 3. The proportion of women in the labour force by age, in 1979 and 1987



Population structure standardisation

The population structure has changed in such a way that it is reflected in time use. In order to see to what extent the changes in time use are a consequence solely of the change in the population structure, it was necessary to standardise the structural changes. This made it possible to examine the changes in behaviour.

Standardisation can be made in several ways (see Robinson 1985, 300-306). The simplest way is to compare the time use of same population groups at different points of time. This is how standardisation was usually done for the purpose of the following chapters. Time use is examined e.g. by employment and family cycle. Usually standardisation is made only one or a few factors at a time. In this chapter, however, standardisation results are reported taking into account the effects of several different variables.

For the purpose of standardisation we used a regression model where the independent variable was quantitative (time used for the activity) and the dependent variables were qualitative (background variables depicting the population structure). In the sample, population structure was standardised according to family cycle and socio-economic status. The family cycle variable was a compound variable made up of data on age, civil status, and number of children. Standardisation was made separately for men and women. The standardisation procedure is explained in greater detail in the chapter Quality Description.

Table 3 shows the effects of standardisation for men and women. Without standardisation, the time used for gainful employment shows a daily increase of 11 minutes for men and 10 minutes for women. After standardisation according to family cycle and socio-economic status, the increase in time worked decreases to only six minutes for men, and disappears completely for women. The increase in time used for gainful employment by women is obviously chiefly explained by the women's propensity for taking up employed work continued to increase in the 1980s.

The amount of domestic work has clearly grown for men and decreased for women, even after standardisation according to family and socio-economic structure. The time used for child care has increased for both men and women. The increase in time used for child care is even greater after standardisation than before standardisation. The changes in time used for domestic work are thus a consequence of behaviour change and cannot be explained solely by changes in population structure.

Standardisation of the population's age structure did not have any effect on the time used for personal needs. Both men and women spent about ten minutes less time on physiological needs in 1987. The change is statistically highly significant. We may say that Finns sleep less than before.

Time used for education has decreased for both sexes, even if the student population share is kept constant for both points of time. The decrease in time used for education is influenced by the change in the student population in the 1980s. The share of primary and upper secondary school students has decreased and the share of other students has increased. Primary and upper secondary school students use more time for their education than university students do. Primary school students spend 32 hours per week on school and homework, upper secondary school students 39 hours per week and students at vocational training institutions 38 hours per week. University students spend 30 hours per week on their education.

Population structure standardisation has hardly any effects on changes in free time use. Television watching increased by more than 20 minutes for both men and women. Other free time decreased for men by almost half an hour and remained constant for women. The total amount of free time remained unchanged for men, but increased for women.

Table 3. Men's and women's time use in 1979 and 1987. Changes expressed unstandardised and standardised according to family and socio-economic structure. Minutes per day.

Activity	1979		1987		Change	
	Unstan- dardi- sed	Stan- dardi- sed	Unstan- dardi- sed	Stan- dardi- sed	Unstan- dardi- sed	Stan- dardi- sed
Men						
Gainful employment	258	260	269	266	+11	+6
Domestic work	101	102	111	109	+10	+7
Child care	9	8	10	10	+1	+2
Personal needs	635	635	625	625	-10	-10
Education	70	65	57	61	-13	-4
Watching television	87	88	111	111	+24	+23
Other free-time activities	280	281	257	256	-24	-26
Women						
Gainful employment	187	193	197	191	+10	-2
Domestic work	194	192	184	185	-10	-7
Child care	26	24	31	33	+5	+9
Personal needs	633	632	621	622	-11	-10
Education	74	73	64	65	-9	-8
Watching television	70	69	91	91	+20	+22
Other free-time activities	257	256	251	252	-6	-5

CHANGES IN GAINFUL EMPLOYMENT

Reduction in working hours in the 1980s

The working hours of Finnish wage and salary earners was reduced during the 1980s both by means of longer vacations and shorter weekly working hours. In 1984 the number of vacation days were increased from 24 workdays (Saturdays included) to 30 for employees and workers whose employment has lasted at least one year.

Weekly hours have been reduced for those who work three shifts. In 1980 weekly hours were reduced from 40 to 38 for three-shift work on weekdays only, and to 36 hours for three-shift work that includes week-ends.

The longest weekly working hours have been reduced beginning in 1986. In 1986 and 1987, wage earners doing 40 hour weeks got their total annual working time reduced by 48 hours in the private sector and by 32 hours in the public sector. The way in which working time was reduced was agreed on at the trade union level and was mainly implemented in the form of additional free days. Some trade unions chose to reduce the number of weekly working hours.

Changes in yearly working time in the 1980s

The changes in working time in the 1980s have thus concerned mainly the reduction of the yearly working time. The study of changes in time use does not reveal any information on changes in yearly working time, because the 1979 study only covers the autumn months.

We may nevertheless follow the development of the yearly working time by using the Central Statistical Office's monthly Labour Force Surveys. The average yearly working time of wage and salary earners can be used as an indicator of the trend for all wage and salary earners. However, as the average also includes part-time employed and temporaries, it cannot be used as a basis to draw conclusions on e.g. the development of hours worked by people doing normal full-time work. The yearly working time also includes overtime and extra work. Absences and leaves (e.g. vacations and maternal leave) reduce the number of hours worked.

Table 4. Average yearly working time of wage and salary earners by industrial status in 1979-1987. Hours per year

Year	Wage and salary earners		
	Total	Employees	Workers
1979	1765	1727	1819
1980	1764	1740	1803
1981	1738	1715	1776
1982	1711	1683	1751
1983	1715	1697	1734
1984	1716	1700	1734
1985	1712	1699	1729
1986(1)	1687	..	..
1987	1701	1685	1719

Source: Labour Force Statistics 1987

The yearly working time of wage and salary earners decreased in 1979 - 1987 by approximately 64 hours, or four per cent. Workers traditionally have longer working hours than employees, but the difference seems to have become smaller. The reduction in yearly working time is greater for workers (100 hours) than for employees (42 hours). As a consequence, the difference between the two groups in yearly working time has decreased from 92 hours to 34 hours in the period from 1979 to 1987.

The fact that the yearly working time has decreased does not mean that less work is being done in Finland. While the hours worked has decreased on the level of the individual, the total amount of gainful work done by the whole population has increased by four per cent in the period from 1979 to 1987 (Labour Force Statistics 1987, 41). This increase is due mainly to the growth in the number of persons gainfully employed. The number of individuals of working age has increased, and the unemployment rate was a little lower in 1987 (5.1 per cent) than in 1979 (6.0 per cent).

Changes in normal hours of work

Normal hours of work are based on collective bargaining agreements. Changes in normal hours of work are monitored through Labour Force Surveys.

(1) Due to the civil servants' strike, the figures for April are based on an estimate, wherefor the results cannot be specified separately for employees and workers.

Table 5. Wage earners' normal working time by sex in 1981 and 1987. Figures are expressed as percentages (%)

Normal weekly hours of work	Both sexes		Men		Women	
	1981	1987	1981	1987	1981	1987
1 - 29 hours	6,8	6,7	2,2	3,7	11,6	9,9
30 - 39 "	35,1	47,3	19,8	41,5	30,9	53,3
40 "	63,3	40,2	72,6	47,4	53,3	32,8
41+ "	4,6	5,2	5,3	6,9	3,9	3,5
Not known	0,2	0,6	0,1	0,6	0,3	0,5
Total	100	100	100	100	100	100

Source: Supplementary Labour Force Surveys 1981 and 1987

The frequency of part-time work has remained the same as at the beginning of the decade. In other words, less than seven per cent of all wage and salary earners have working hours totalling less than 30 hours per week. Part-time work is more frequent among women than among men, but its share has diminished a little in the case of women, and increased a little in the case of men. Weekly working hours have increased for part-time workers; in 1981, 51 per cent of all part-time employed persons worked less than 20 hours per week, as compared to only 37 per cent in 1987.

The most common number of weekly working hours in full-time employment was 40 hours at the beginning of the decade, both for men and women. There has been a marked change in this respect in the 1980s: 63 per cent of the wage and salary earners worked a 40-hour week in 1981, but six years later the number was only 40 per cent. Both men and women have changed to slightly shorter working weeks. This is related to partly to the collective bargaining agreements providing for shorter working weeks, and partly to the general trend towards administrative work, as the working week traditionally has been shorter for employees than for workers. Men work longer than 40-hour weeks to a slightly greater extent than before.

Time used for gainful employment

Above we examined the normal weekly working hours according to the collective bargaining agreements. In this chapter we will take a look at how much time people spend on gainful employment outside the vacation season. For this purpose we use the time use study material covering the period from September to November. Gainful employment is inclusive of time used for primary and secondary work as well as travel between job and home, but exclusive of lunch hours.

The share of time used for gainful employment has increased somewhat for the whole population, as we discerned from our examination of the basic structure of time use. The share of gainful employment has increased also for the gainfully employed.

Table 6. Time used for gainful employment by the gainfully employed in 1979 and 1987. Hours per week

	1979	1987	Change
Primary employment	36,5	37,2	+0,7
Secondary employment, in agriculture	0,5	0,4	-0,1
Secondary employment, other sectors	0,3	0,8	+0,5
Travel	2,9	3,1	+0,2
Gainful employment, Total	40,2	41,5	+1,3

The gainfully employed used an average of 1.3 hours more time per week for gainful employment in 1987 than in 1979.⁽¹⁾ Women's amount of gainful employment has grown less than men's. Women used a total of 37.1 hours a week in 1987, which is 0.8 hours more than in 1979. The time used for gainful employment by men increased by 1.4 hours to a total of 45.5 hours in 1987.

The time used for primary employment shows the clearest increase, or 0.7 hours per week. Time used for secondary employment has increased by almost half an hour per week from 1979.

The results are compatible with the Labour Force Survey, according to which 7.3 per cent of the gainfully employed worked overtime in 1979. The number was slightly higher in 1987, or 8.8 per cent. Secondary employment also became more frequent during that period as the share of persons with secondary employment increased from 5.7 to 6.1 per cent of all gainfully employed (Labour Force Statistics 1987, 39).

(1) The difference is statistically significant at the level $p = .06$.

Travel between job and home now requires one quarter of an hour more time each week than at the beginning of the 1980s. This is an increase of nearly ten per cent.

Economic indicators show that the autumn of 1979 was the peak of an economic boom. The 1980s were a period of steady growth, but the autumn of 1987 saw the beginning of an accelerated growth phase which was expected to reach its peak in 1988 (Quarterly National Accounts 1988). The sample periods analysed in the time use study thus represent the economic growth from one peak to the following upswing. The level of manpower demand was above average in both periods.

Length of work day

The length of the work day of the gainfully employed is an average of 8 hours 27 minutes, 7 hours 49 minutes being used for primary and secondary employment and 38 minutes for travel between job and home. The time used for gainful employment has increased by 24 minutes and the time used for travel between job and home by three minutes.

Table 7. Primary and secondary employment and time used for travel between job and home by sex in 1979 and 1987. Hours and minutes per working day

	Gainful employment		Travel between job and home		Total	
	1979	1987	1979	1987	1979	1987
Both sexes	7.25	7.49	0.35	0.38	8.00	8.27
full-time empl.	7.38	7.57	0.35	0.39	8.13	8.36
part-time empl.	4.23	5.03	0.28	0.27	4.51	5.30
Men						
full-time empl.	8.00	8.17	0.35	0.39	8.35	8.56
Women						
full-time empl.	7.12	7.31	0.35	0.38	7.46	8.09
part-time empl.	3.54	4.54	0.27	0.27	4.21	5.21

The work day of the gainfully employed has grown an average of 23 minutes for the full-time employed and 39 minutes for the part-time employed. The length of the work day of the full-time employed has grown by the same amount for both men and women.

Full-time gainfully employed men used 1.7 hours more time per week in 1987 (46.2 hours per week) for gainful employment than in 1979 (44.5 hours). Full-time gainfully employed women used about as much time in 1987 (38.5 hours) as in 1979 (38.6) for gainful employment. The working week of women working full-time seems not to have grown any longer, but rather to have become concentrated on fewer but longer days.

Women working part-time use one hour more time for gainful employment on working days than at the beginning of the 1980s. Part-time gainfully employed women now also work significantly longer working weeks: they used 22.6 hours per week for gainful employment in 1987, which was 2.9 hours more than in 1979. This seems to be related both to longer normal working hours in part-time work and to the fact that part-time workers often have secondary jobs.

Students use more time for gainful employment than before. Employment among students has decreased for students below 20 years of age and increased among students in older age groups. According to the time use study, gainful employment has not increased among primary or upper secondary school students at the level of the whole country. The results rather reflect an increase in the time spent on gainful employment by students at university level.

Socio-economic status and time used for gainful employment

In 1979, self-employed persons was the group who used the greatest amount for gainful employment. Upper-level employees used more time per week for gainful employment than lower-level employees, and workers used the least amount of time.

The time used per week for gainful employment has increased most clearly for workers and self-employed persons. Male workers use more time for gainful employment than male employees. Women upper-level employees and women workers, however, use about the same amount of time, whereas women lower-level employees use somewhat less time for gainful employment per week. There has been a decrease in the length of the work week of lower-level employees.

Table 8. Time used for primary and secondary work by socio-economic status and sex. Hours per week

Both sexes	1979	1987	Change
Farmers of own account	42,7	43,4	+0,7
Other self-employed persons	40,2	42,7	+2,5
Upper-level employees	38,2	38,4	+0,2
Lower-level employees	35,8	34,3	-1,5
Workers	36,7	40,4	+3,7
Men			
Farmers and own account	50,9	49,0	-1,9
Other self-employed persons	45,5	46,9	+1,4
Upper-level employees	39,4	39,6	+0,2
Lower-level employees	40,2	39,3	-0,9
Workers	39,1	42,1	+3,0
Women			
Farmers on own account	33,0	35,2	+2,2
Other self-employed persons	31,8	37,3	+5,5
Upper-level employees	36,5	36,8	+0,3
Lower-level employees	33,6	32,1	-1,5
Workers	33,1	36,5	+3,4

As we noted before, the difference between the yearly hours worked by workers and employees has decreased, although the working time of workers remains somewhat longer than that of employees. If we instead examine hours worked during the normal working season, we find that the difference between the two groups in hours worked has actually grown.

Employees more readily than workers keep some of their vacation days in the autumn. As a consequence they have less work days during the period observed than workers. This reduces the time they use for gainful employment and partly explains the longer hours put in by workers.

The weekly time used for gainful employment increased most markedly in the field of finance and insurance, which underwent a rapid expansion in the 1980s. There was a clear increase in the time used for gainful employment also in the fields of construction and trade. These changes can be seen also in the Labour Force Survey figures on the amount of hours worked in primary employment (Labour Force Survey 1984 and 1987, unpublished tables).

The weekly working hours of those who work regular daytime hours has increased. The 1980 reduction of threeshift workers' working time can be seen also in the form of a reduction of hours actually worked. The reduction in weekly working hours has not lead to a corresponding increase in

overtime or secondary work on their part. Persons doing three shifts had significantly more free days than those with other working hour arrangements. Men working two shifts use more time for gainful employment, whereas women working two shifts use a little less time than before.

Summary

The time used for gainful employment by the population has grown by four per cent in the 1980s according to the Labour Force Survey. This is due to the increase in the number of persons gainfully employed, as the yearly working time of wage and salary earners has decreased in the same period as a consequence of longer vacations.

The lengths of normal weekly hours of work have changed somewhat. The 40-hour week has become less common, and the number of normal hours in part-time work has increased.

The time used for gainful employment differs somewhat from the normal working hours. Overtime has become more frequent, and the time used for secondary work has also increased. In 1987 the time used for gainful employment was 1.3 hours longer than eight years earlier.

Full-time gainfully employed men use more time for gainful employment than at the beginning of the 1980s. For women working full-time, the weekly hours worked have remained the same, while that of part-time gainfully employed women has increased. The reduction of the weekly working hours of three-shift workers can be seen in the decrease in the time actually used for gainful employment.

Despite the reduction of the working time the weekly time used for gainful employment seems to have increased rather than decreased. The gainfully employed seem to have a need to divide working time and free time into, on the one hand, intensive work periods with longer work days than before, and, on the other hand, vacation periods completely free from gainful employment.

CHANGES IN DOMESTIC WORK

Domestic work according to the time use study includes household work, maintenance, shopping and errands, child care, assistance of other family members and travel related to these activities. The time used for domestic work has remained unchanged in the 1980s as far as the 10 - 64 year old population is concerned. Domestic work accounts for 2 hours 47 minutes of the daily time use, which is the same as in 1979.

Sex and domestic work

The amount of domestic work thus remained unchanged in the 1980s. What about the sexual division of domestic work? Has it remained unchanged as well? We first examine whether there has been the same redistribution of domestic work in Finland as in the other Western countries, where the share of domestic work done by men has increased since the 1970s.

Table 9. Time used for domestic work by sex in 1979 and 1987. Hours and minutes per day

	1979	1987	Change
Both sexes	2.47	2.47	0.00
Men	1.50	2.01	+0.11
Women	3.39	3.35	-0.04
% Men/Women	50 %	56 %	

Men used an average of 2 hours 1 minute per day and women 3 hours 35 minutes for domestic work. Since 1979 the time used for domestic work has increased by 11 minutes for men and decreased by four minutes for women(1) . Women thus still do the major part of the domestic work, but men's share of domestic work has grown in Finland, as in the other Western countries. The time used by men for domestic work

(1) The difference is statistically significant for men (p=.001) but for women (p=.30).

corresponded to 50 per cent of the time used by women for domestic work in 1979, and 56 percent in 1987.

Content of domestic work

In this chapter we examine if the time used for different kinds of domestic work has remained the same as at the beginning of the 1980s or if there perhaps have been some changes in the content of the domestic work. The presumption is that the routine domestic work activities have decreased while shopping and errands as well as child care have increased.

Table 10. Changes in time use in different types of domestic work by sex. Hours and minutes per day

Both sexes	1979	1987	Change
Household work	1.28	1.18	-0.10
Maintenance	0.18	0.18	0.00
Child care	0.17	0.20	+0.03
Shopping and errands	0.29	0.35	+0.06
Other domestic work	0.14	0.16	+0.02
Total	2.46	2.47	+0.01
Men			
Household work	0.34	0.35	+0.01
Maintenance	0.27	0.27	0.00
Child care	0.08	0.10	+0.02
Shopping and errands	0.25	0.30	+0.05
Other domestic work	0.16	0.19	+0.03
Total	1.50	2.01	+0.11
Women			
Household work	2.18	2.02	-0.16
Maintenance	0.10	0.09	-0.01
Child care	0.25	0.31	+0.06
Shopping and errands	0.33	0.39	+0.06
Other domestic work	0.13	0.14	+0.01
Total	3.39	3.35	-0.04

The time used for household work has decreased in the 1980s. The following activities related to meals have diminished: the time used for dish washing has been reduced by 23 per cent and the time used for cooking by 15 per cent. Use of dish washers have become more common, as have micro-wave ovens and pre-fabricated foods. 36 per cent of all respondents had a dish washer, and they managed their after-

meal chores somewhat faster than those without a washer. 27 per cent of the respondents had a micro-wave oven. Micro-wave ovens did not seem to reduce the time that their owners used for cooking.

Time used for shopping and errands has increased by 21 per cent since the beginning of the 1980s. The second sector of domestic work where the amount of time used shows an increase is child care. Despite a decline in the number of children, the time used for child care has increased in Finland, in line with the recent trend in other industrialised countries. Assistance to members of other households seems to have increased rather than decreased.

Women use less time for cooking and washing up than before, but more time for child care and errands than before. The most marked increase for men concerns time used for errands. In other respects the increase is divided evenly between different domestic work activities.

Men do more domestic work on their days off than before. Men are doing 25 minutes more domestic work than in 1979 on Sundays, 18 minutes more on Saturdays and 10 minutes more on working-days.

The major part of all domestic work is still concentrated on Saturdays, with men doing about three hours and women more than four hours of domestic work. The difference has grown smaller, as women do 14 minutes less domestic work on Saturdays than at the beginning of the 1980s. Saturday is still the weekly house cleaning day, despite the significant growth in the importance of Saturday as a shopping day. The time used for errands is 10 minutes (29 per cent) longer than in 1979. This is due both to that more and more people go shopping on Saturdays and to the fact that more time is spent on shopping.

Baking on Saturday has decreased. Nowadays 16 per cent of all women bake on Saturday, while the proportion at the beginning of the decade was 21 per cent. Time used for cooking and washing up has decreased steadily for all days of the week.

Age and domestic work

Domestic work can thus be seen to be more evenly divided between men and women than before. Is this change related to age, i.e. do young men do more domestic work nowadays than before? Or has there been a change in attitudes towards domestic work in all age groups?

Figure 4. Time used by men for domestic work by age in 1979 and 1987

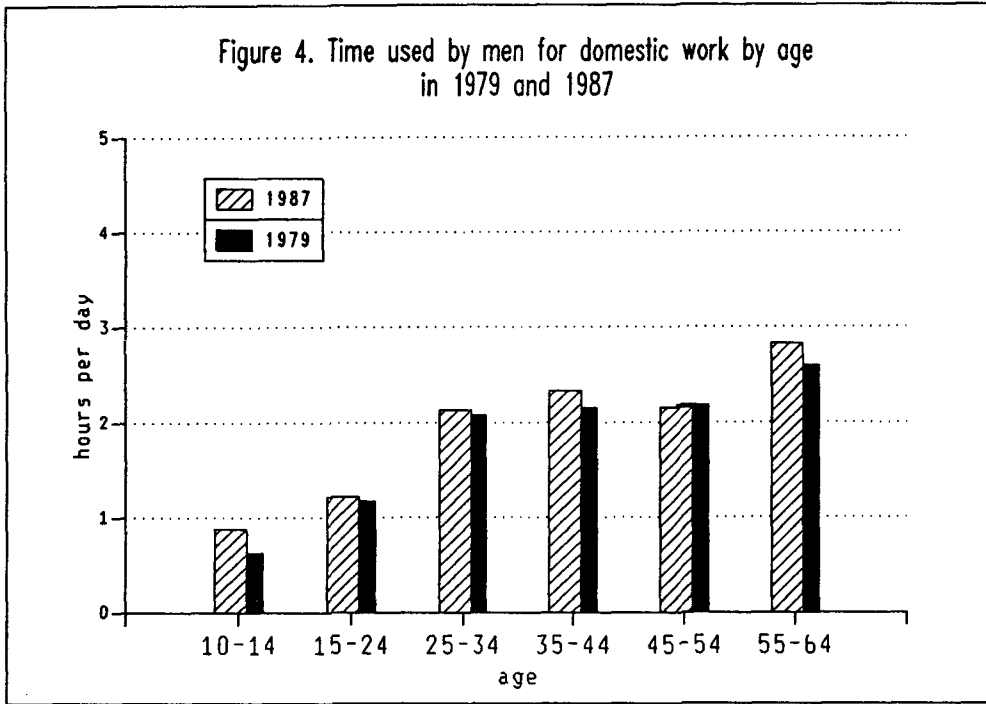
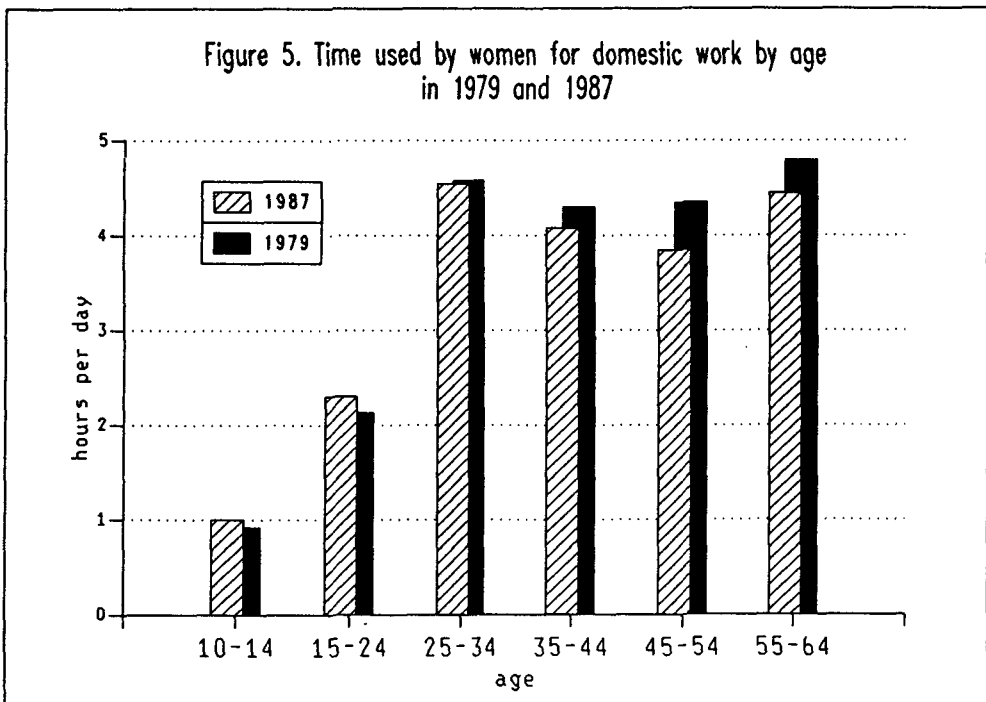


Figure 5. Time used by women for domestic work by age in 1979 and 1987



As we can see from Figure 4, men's domestic work has increased in all age groups except among 45 - 54 year olds. The change does not concern only young men, as is often believed. It can be seen in almost all age groups. Men in the older age groups even use more time for domestic work than men in younger age groups.

The changes in domestic work among women is related to age (Figure 5). Young women use slightly more time than before for domestic work. The older women, who traditionally have done more domestic work than any other group, have clearly reduced the time they use for domestic work.

The differences between those age groups of women with the greatest and those with the smallest amount of domestic work have diminished somewhat. The marked increase in the amount of gainful employment in the 45 - 54 year age group is reflected in a decrease in the amount of domestic work done both by women and men.

Family cycle and domestic work

The amount of domestic work depends primarily on the actual stage of the family cycle. Young people living at home with their parents spend less time on domestic work than any other group. Parents with small children do the most domestic work of all groups. Has there been any change in the division of the burden of domestic work between spouses or between children and parents? At what stage of the family cycle are women doing less domestic work than before, and at what stage are men doing more?

As we can see from Figures 6 and 7, the greatest increase according to the stage of the family cycle has taken place among men with at least two children. But also young people, both girls and boys, living at home with their parents, are doing domestic work more diligently than before. Their contribution in terms of domestic work nevertheless remains the smallest of all groups.

Of all women, those with at least three children do the most domestic work. This group also shows the clearest increase in the time spent on domestic work. These mothers are less frequently gainfully employed than others. To take an example, one half of all mothers with at least three 3 - 6 year old children are not part of the labour force (Asuntokunnat ja perheet 1985, 99). Mothers who are sole providers use about the same amount of time for domestic work as they did at the beginning of the decade.

Figure 6. Time used for domestic work by men by family cycle in 1979 and 1987

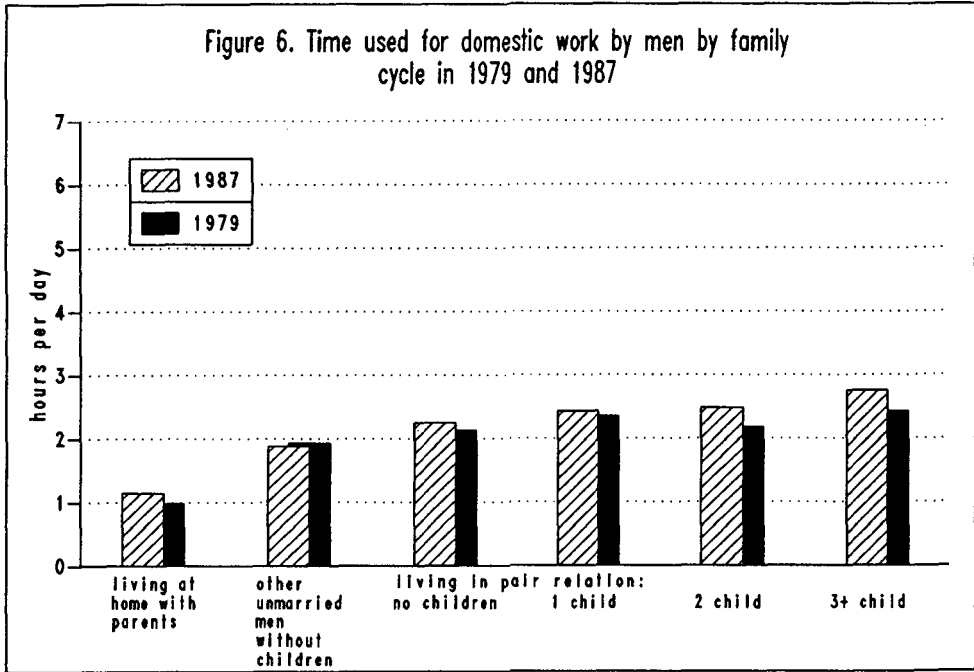
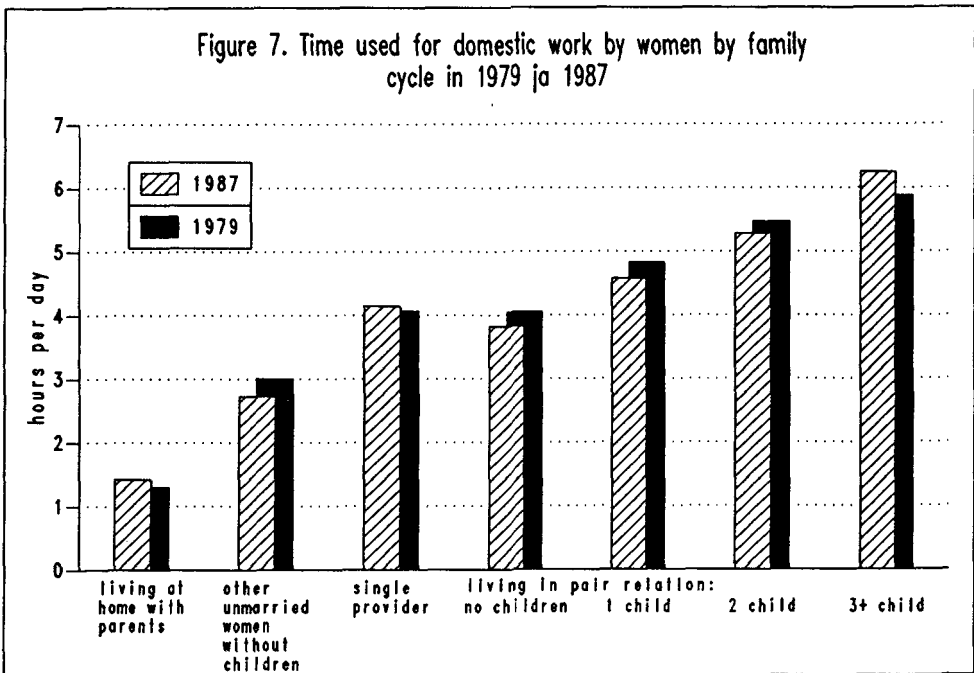


Figure 7. Time used for domestic work by women by family cycle in 1979 and 1987



In other stages of the family cycle women on the average are doing less domestic work than before. E.g. married women with no more than one child used 15 minutes less time for domestic work in the late 1980s than they did at the beginning of the decade.

To assess how couples share the work burden, we can use the relative share of the domestic work done by married men as compared to that done by married women:

	1979	1987
Married, no children	53 %	59 %
" one child	49 %	53 %
" two children	40 %	47 %
" at least three children	41 %	44 %

Women still do the major part of the family's domestic work, but the work is being shared more evenly between the spouses than before. The share of the domestic work done by the men has grown regardless of the number of children. However, the fewer the children, the more evenly the domestic work is still shared between the spouses.

Gainful employment and domestic work

In the last chapter we found that gainful employment has increased in the 1980s. Is the reduction of the amount of domestic work done by women only a result of more women being gainfully employed or has there also been a reduction of the domestic work done by the women who are gainfully employed?

Gainfully employed women use an average of 10 minutes less time per day for domestic work than at the beginning of the decade. The reduction of domestic work is thus not explained only by women more readily seeking gainful employment, but rather by the fact that also women who are gainfully employed nowadays use less time for domestic work than they did at an earlier time.

How about the women who primarily are home-makers? They use the most time for domestic work of all women, a total of 7 hours 41 minutes per day, which is no less than 41 minutes more than in 1979. With more women being gainfully employed, the group of home-makers is getting smaller and increasingly represents mothers with young children (Labour Force Survey 1979 and 1987). This in turn explains why their domestic work has increased on the average.

The 1979 time use study showed that unemployed women compensated the lack of gainful employment in part with domestic work. They did almost six hours of domestic work per day. Unemployed men used three hours for domestic work. In 1987 unemployed women used 24 minutes less time for domestic work, whereas unemployed men used 10 minutes more than in 1979. Unemployed men and unemployed women have become somewhat more equal with respect to their time use structure.

Socio-economic status and domestic work

Among the gainfully employed women, socio-economic status is clearly related to the time used for domestic work. Farmers on own account used more time for domestic work of all socio-economic groups in 1979.

Table 11. Time used for domestic work by sex and socio-economic status. Hours and minutes per day

	Men			Women		
	1979	1987	Change	1979	1987	Change
Farmers on own account	1.42	1.36	-0.06	5.11	4.46	-0.25
Other self-employed persons	1.37	1.50	+0.13	3.52	4.06	+0.14
Upper-level employees	1.53	2.10	+0.17	3.20	3.22	+0.02
Lower-level employees	1.56	2.17	+0.21	3.37	3.31	-0.06
Workers	2.02	1.58	-0.04	3.43	3.29	-0.14
Gainfully employed, total	1.56	2.00	+0.04	3.47	3.37	-0.10

Women working on the family's own farm have reduced the time used daily for domestic work by 25 minutes which is more than for any other socio-economic group. Time used for domestic work has increased among all other self-employed women. Among women wage and salary earners, women workers used more time for domestic work than women employees in

1979. The time reduction is however greater by women workers than by women employees, which means that the difference between the two groups has grown smaller. In 1987 workers and lower-level employees used the same amount of time for domestic work, and upper-level employees a little less than that.

The time used by men for domestic work showed rather small variations from one socio-economic group to the other in 1979. Workers did most domestic work and self-employed persons least. In 1987 farmers on own account and workers did a little less domestic work than before whereas others did more than before. Least time for domestic work was now used by farmers on own-account. The difference compared to other socio-economic groups has grown bigger in the 1980s.

The following percentages express men's use of time for domestic work as a ratio of the time used by women of the same socio-economic group:

	1979	1987
Farmers on own account	33 %	34 %
Other self-employed persons	42 %	45 %
Upper-level employees	56 %	64 %
Lower-level employees	53 %	65 %
Workers	55 %	56 %

Men working on farms use one third of the time for domestic work compared to women working on farms. This ratio has remained constant from the beginning of the 1980s. Among employees, the differences between men's and women's time use are the smallest: male employees' time use for domestic work being 65 per cent of the corresponding time used by women employees.

Summary

The total amount of time used for domestic work is about the same at the end of the 1980s as at the beginning of the decade. But the content of the work has changed. Less time is being used for cooking and dish washing, whereas shopping and child care take more time than before.

Although the same amount of time is used for domestic work as before, there have been changes in the distribution of domestic work between different socio-economic groups. The general trend is that those who have used much time for domestic work are reducing, and those who have used the least time are increasing the time they use for domestic

work. This has lead to a slight decrease in the differences between men and women as well as between parents and children. The differences between women who use much time for domestic work and women who use little time have also diminished. Older women do less domestic work and younger women more domestic work than before.

The greatest reduction in time used for domestic work has taken place among women working on farms. The greatest reduction among wage and salary earners can be seen among workers. The differences between socio-economic groups have thus diminished. Among men, employees have increased the time they use for domestic work, whereas farmers on own account and workers show a slight decrease.

TOTAL TIME SPENT ON GAINFUL AND DOMESTIC WORK

The total hours worked includes the total time spent on gainful work, studies and domestic work. It describes the proportion of these different types of work during different periods of the life cycle. Studies give way to gainful work and the amount of domestic work varies with the family situation. We can also study the total burden, i.e. whether the work is evenly distributed between the different population groups or whether some people are overwhelmed with work? How should e.g. the demands of work be adapted to the demands of the family?

Table 12. Total hours worked time of men and women during 1979 and 1987. Hours per week

	Both sexes		Men		Women	
	1979	1987	1979	1987	1979	1987
Gainful work	26	27	30	31	22	23
Studies	9	7	8	7	9	8
Domestic work	19	20	13	14	25	25
Total	54	54	51	52	56	56

The total hours worked by the population aged 10-64 years has remained at 54 hours per week from 1979 to 1987. The total hours worked by women was an average of 56 hours per week in both years. Total hours worked by men increased from 51 hours to 52 hours. Women thus still work more than men on the average, though the difference has been reduced from five hours to four hours.

Family cycle and total hours worked

In the earlier time use study it was discovered that married women stress different sectors of work in accordance to the changing needs of the family. The proportion of domestic work shows a clear increase when the children are small. When the children grow up, the share of domestic work is reduced and replaced by a growing share of gainful work. No such effect could be discovered on the part of men. The time men used for gainful work remained approximately the same regardless of the age of the children.

Figure 8. Total work hours of men by family cycle in 1979 and 1987

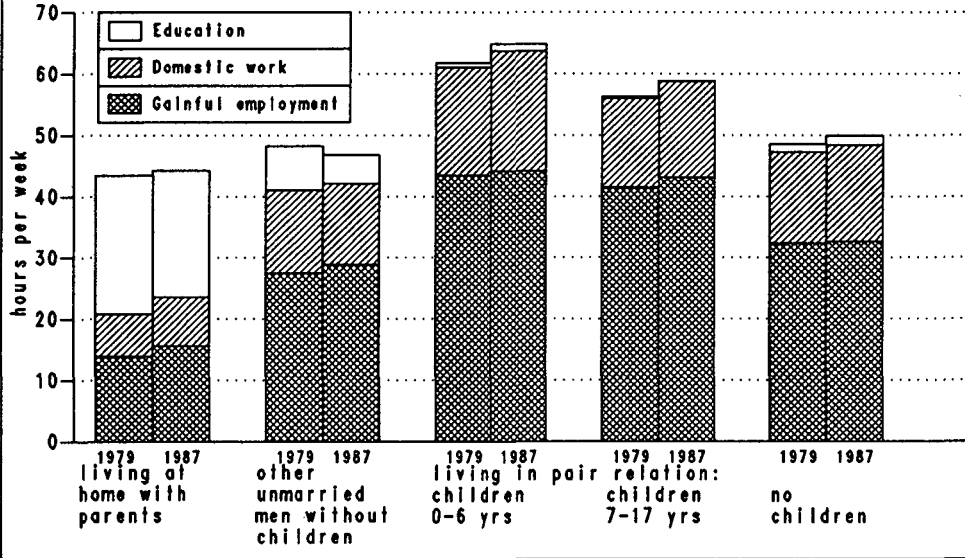
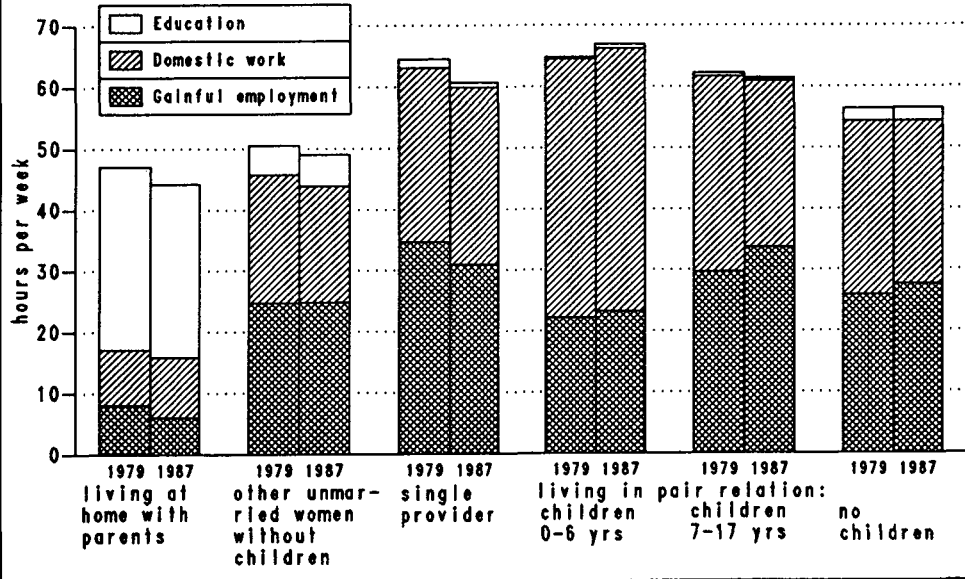


Figure 9. Total work hours of women by family cycle in 1979 and 1987



From figures 8 and 9 we can see that the total hours worked by young people living with their parents consists mainly of studies, especially on the part of girls. The proportion of studies of the total hours worked is significantly smaller in other population groups.

The working contribution of men has grown in all population groups with the exception of single men. The working contribution of fathers has increased by almost three hours per week.

The total working contribution of mothers of small children has increased by two hours per week while that of mothers in another stage of the family cycle has rather diminished. The mean total hours worked by single providers has decreased by almost four hours per week. The total working time of gainfully employed single providers has diminished by as much as seven hours, i.e. from 69 hours to 62 hours per week. On an average they use less time than before on both gainful work and domestic work. The hours worked by mothers of small children living in a pair relation has increased from 65 hours to 67 hours in spite of the fathers of small children taking more part in the daily work at home - the total hours worked by the fathers increased from 62 hours to 65 hours.

Main activity and total hours worked

The variation of the length and structure of the total hours worked depends on what a person is mainly doing, i.e. on the main activity of that person.

Table 13. The total hours worked by main activity during 1979 and 1987. Hours per week

		Gainful employment	Domestic work	Education	Total
Gainfully employed	1979	40	20	0	60
"	1987	42	19	0	61
Unemployed	1979	3	31	0	34
"	1987	1	29	0	30
Home-maker	1979	1	49	0	50
"	1987	1	54	0	55
Student	1979	2	7	37	46
"	1987	2	9	34	45

The total hours worked by the gainfully employed is 61 hours per week on an average, which is about the same as in 1979, meaning that in their case, the proportion of gainful work has increased somewhat. The hours worked by home-makers, 55 hours per week, consists almost totally of domestic work. Their total hours worked has increased by five hours per week, which is due to the fact that the group with domestic work as its main activity is now more clearly made up of mothers with small children.

Students use 34 hours per week on an average for studies, which is three hours less than before. The proportion of domestic work has increased a little and the proportion of gainful work has remained unchanged in the whole population of students also including school children.

The gainfully employed thus work the longest total hours. What are the hours worked by gainfully employed men and women? Has the difference between them diminished as for the whole population? The total hours worked by the gainfully employed consists of gainful and domestic work, as can be seen from the above table.

Table 14. The total hours worked by the gainfully employed by sex during 1979 and 1987. Hours per week

	Gainful employment	Domstic work	Total
Men			
1979	44	14	58
1987	46	14	60
Women			
1979	36	27	63
1987	37	25	62

The total hours worked by men has increased a little whereas that of women has decreased. This means that the difference between the sexes has diminished from five hours to two hours. The total burden of work is in other words more evenly distributed between men and women than before.

Socio-economic status and total hours worked

Self-employed women have the longest total hours worked both in agriculture (68 hours) and in business enterprises (67 hours). This is explained not by any longer gainful work hours, but rather by the fact that they use more time for domestic work than wage and salary earners do.

Table 15. Total time spent on gainful and domestic work by sex and socio-economic status in 1987. Hours per week

	Men		Total	Women		Total
	Gainful empl.	Domestic work		Gainful empl.	Domestic work	
Farmers on own account	50	11	61	35	33	68
Other self-employed persons	51	13	64	38	29	67
Upper-level employees	43	15	58	40	24	64
Lower-level employees	42	16	58	35	25	60
Workers	46	14	60	40	24	64

The total hours worked by women is longer than for men in all socio-economic groups. Self-employed persons are more traditional than wage and salary earners in their division of gainful and domestic work between the sexes and the changes have been more obvious for employees, as we have already seen in the chapter concerning domestic work.

The total length of the work day

An individual work day gives a better illustration of everyday life than an average of the work week. We will therefore look at how the total length of the work day of working people has changed in the course of the eight years.

Table 16. Time spent on gainful and domestic work by sex during 1979 and 1987. Hours and minutes per day

	Gainful employment	Domestic work	Total
Both sexes			
1979	7.59	2.15	10.14
1987	8.27	2.02	10.29
Men			
1979	8.31	1.29	10.00
1987	8.52	1.27	10.19
Women			
1979	7.24	3.06	10.30
1987	7.56	2.46	10.42

The total length of the work day is 10 hours 30 minutes. It has grown fifteen minutes longer in the years since 1979. Every day nearly half an hour more time is used for gainful employment, and fifteen minutes less time is used for domestic work than at the turn of the decade.

The total work day of a gainfully employed woman has grown 12 minutes longer, making up an average of 10 hours 42 minutes in 1987. The length of the mean work day of men has grown slightly more, by 19 minutes, to 10 hours 19 minutes in 1987. Men use about one hour more time for gainful work than women, but women use almost twice the time for domestic work on work days that men do. As a result, women's total hours worked are an average of 23 minutes longer than men's.

Summary

The total hours worked by the population has remained the same from 1979 to 1987. Women still put in a greater total of hours worked than men, though the difference has diminished a little. The total hours worked by couples with small children has increased, whereas that of single providers has decreased.

The work day has grown 15 minutes longer on the average since 1979, the total length of the work day being an average of 10,5 hours when we include both the time used for gainful employment and the time used for domestic work. The length of the work day has increased somewhat more for men than for women. The total work burden is heaviest among self-employed persons, where the traditional sexual division of gainful and domestic work has been most clearly upheld. Domestic work accounts for a greater share of total hours worked by men who are wage and salary earners, as compared to self-employed men.

CHANGES IN FREE TIME

The term "free time" as used in this time use study means the time remaining from 24 hours when time used for sleep, meals, gainful employment, domestic work and full-time studies has been deducted. Free time is thus the time free from these activities. Has there been an increase in free time in the 1980s? Table 17 shows the development of the weekly free time of men and women and in different age groups

Table 17. Amount of weekly free time by sex and age in 1979 and 1987. Hours per week

	1979	1987	Change
Age 10 - 64	40	41	+1
Men	43	43	0
Women	38	40	+2
Age 10 - 14	48	49	+1
Age 15 - 24	43	43	0
Age 25 - 44	36	37	+1
Age 45 - 64	42	44	+2

The amount of free time has increased an average of one hour per week in the 1980s. In amount of free time was 40 hours a week in 1979 and 41 hours in 1987. Men's amount of free time remained unchanged, whereas women's free time increased by nearly two hours per week. Men still have more free time than women but the difference has diminished from five hours to three hours.

The youngest and the oldest age groups have greatest amounts of free time. In the 1980s the amount of free time showed its greatest increase in the oldest age groups. People in the 45-64 age group now have two hours more weekly free time than at the end of the 1970s.

The free time of gainfully employed men remained unchanged, whereas the free time of gainfully employed women showed a slight increase.

Content of free time

The amount of free time increased a little in the 1980s. Has there been any change in the content of free time as well?

Table 18. Use of free time by type of activity in 1979 and 1987. Per cent of total amount of free time

Means of spending free time	Both sexes		Men		Women	
	1979	1987	1979	1987	1979	1987
Leisure-time studies	1	1	1	1	2	2
Participative activity	3	2	3	2	3	2
Sports and outdoor recreation	10	10	12	12	8	8
Entertainment and culture	2	2	2	2	2	2
Reading	14	14	14	14	14	14
Watching TV	23	29	24	30	22	27
Listening to radio (primary activity)	2	3	3	3	2	2
Socialising	24	23	23	21	26	27
Hobbies	8	7	5	6	11	9
Resting	8	3	8	4	8	3
Travelling and drives	2	3	3	3	2	3
Unspecified	1	1	1	2	1	1
Total	100	100	100	100	100	100
Amount of free time (hours and minutes per 24 hours)	5.44	5.53	6.05	6.06	5.25	5.40

The greatest change in the structure of time use is the increase of the share of TV watching. Now 29 per cent of the free time is spent in front of the television set. In 1979 the share of TV watching was 23 per cent. Resting has decreased to the same degree as TV watching has increased. It seems as if resting would take place in front of the TV set.

The biggest share in free time use, second only to TV watching, is used for socialising with members of the family and with friends. One fourth of the free time is spent socialising. Contrary to expectations, the amount of socialising has not decreased during the 1980s. Neither has there been any reduction in reading in this period of eight years. Reading still accounts for the same share of free time (14 per cent) as in 1979. Sport and outdoor recreation has also retained its 10 per cent share of the free time.

Changes in the contents of men's and women's free time have mainly been in the similar direction. The share of socialising diminished on the part of men, however, but increased on the part of women. Another difference between men and women can be found in the share of hobbies, which shows a decrease for women but a slight increase for men. This is the result of a decrease in women's handicrafts and an increase in men's technical hobbies.

Watching television

Television watching has increased in all industrialised countries during the last decades, though the increase may have peaked in e.g. Japan and the United States, the countries with the greatest shares of TV watching (see Niemi 1986, 142-145). TV watching has increased also in Finland. According to the surveys of the Finnish Broadcasting Company the highest peak in TV watching was at the beginning of the 1980s (Mass Communication, 125). According to the 1979 time use study, 1 hour 18 minutes per day was spent day on TV watching as primary activity. In 1987, the numbers were 1 hour 41 minutes per day, an increase of 23 minutes. If television watching as secondary activity is added, we find that TV watching amounts to a total of 1 hour 50 minutes per day (1 hour 29 minutes in 1979).

Table 19. Watching television (as primary activity) by sex and day of the week in 1979 and 1987. Hours and minutes per day

	1979	1987	Change
Weekdays			
Both sexes	1.04	1.27	+0.23
Men	1.13	1.36	+0.23
Women	0.55	1.18	+0.23
Saturdays			
Both sexes	2.04	2.18	+0.14
Men	2.08	2.27	+0.19
Women	2.01	2.09	+0.08
Sundays			
Both sexes	1.46	2.14	+0.28
Men	1.58	2.32	+0.34
Women	1.35	1.55	+0.20

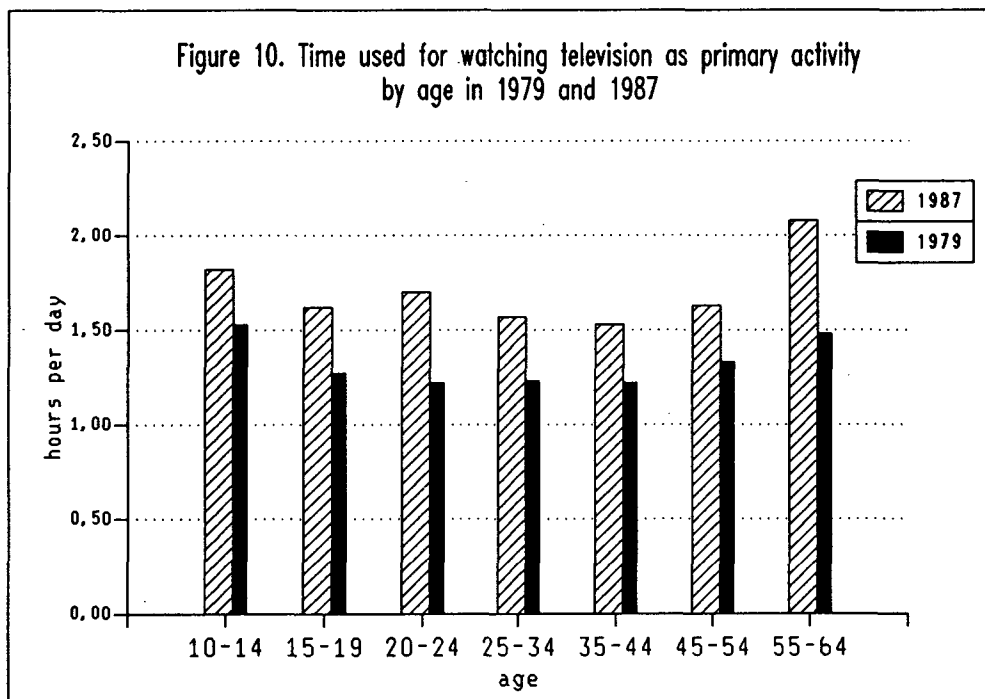
Men traditionally watch television more readily than women. The difference increased even more in the 1980s. Men's TV watching increased by 24 minutes and women's by 21 minutes.

The amount of time used for TV watching is still greatest on Saturdays (2 hours 18 minutes), though Sunday TV watching accounts for the greatest increase, or 28 minutes. Nowadays TV watching is as prevalent on Sundays as on Saturdays (2 hours 14 minutes). On weekdays television watching takes 1 hour 27 minutes.

Television watching has increased most among the population groups with the best chances for passing their time at home in front of the television set. The unemployed increased their TV watching by as much as one hour. The TV watching of gainfully employed persons increased by 19 minutes and that of students by 20 minutes. The smallest increase was recorded for home makers, 15 minutes.

Among gainfully employed men, workers still watch television the most, followed by employees. Self-employed persons have the least time to watch television. Among men, upper-level employees increased their TV watching the most.

Among women, workers and lower-level employees watch television the most, followed by self-employed women. Upper-level employees watch television the least. Workers increased their TV watching the most. As a result, the difference in TV watching between upper-level women employees and women workers continued to increase.



The TV watching of the oldest age groups has increased the most. Persons in age group 55-64 nowadays watch television more than people in other age groups, or about two hours per day. Children aged 10-14 now take second place in TV watching. Eight years ago they were number one. Children's TV watching increased by 17 minutes, which was less than the average increase. On the other hand, persons in the 20-24 age group now watch television about half an hour more than eight years ago. Persons in the 25-44 age group watch television the least, about one and a half hour per day.

Video recorders came into common use in Finland in the period after the earlier time use study. In 1987, 40 per cent of the households had a video recorder. Video recorder owners watched television nine minutes more on the average than other people. Video programmes account for 7 per cent of the total time used for TV watching. Video-programmes were most eagerly viewed by unemployed persons (17 minutes) and students (12 minutes). Sunday is the most popular day for watching video programmes.

In 1987 there was a colour TV set in nearly every Finnish home. TV-watching activity did not differ between owners of colour TV sets and owners of black-and-white TV sets. Those who were offered the choice of new TV channels did not show any additional increase in TV watching as compared to those without this choice. Those who live in areas where TV channel 3 can be viewed use the same amount of time for television watching as those in other parts of the country. The choice of cable or satellite TV does not lead to any increase in the total time of TV watching, either.

Socialising

Socialising includes socialising with family members, relatives and acquaintances, at home, in another household and elsewhere outside home. Socialising also includes visiting restaurants, dances and cafes.

The share of socialising of the total free time has remained nearly the same in the 1980s. People use 23 per cent of their free time for socialising, which is 1 hour 23 minutes per day. If men and women are considered separately there are however some minor changes. Men now use six minutes less time for socialising, whereas women use six minutes more. Men also socialise less both at home and in their acquaintances' homes. Women, for their part, socialise more with acquaintances outside home. Women now also use more time for talking on the telephone than in 1979.

Table 20. Time used for socialising by sex and day of the week in 1979 and 1987. Hours and minutes per day

	1979	1987	Change
Weekdays			
Both sexes	1.04	1.05	+0.01
Men	1.02	0.58	-0.04
Women	1.07	1.12	+0.05
Saturdays			
Both sexes	2.06	2.07	+0.01
Men	2.11	2.02	-0.09
Women	2.01	2.12	+0.11
Sundays			
Both sexes	2.17	2.08	-0.09
Men	2.15	1.58	-0.17
Women	2.18	2.19	+0.01

Socialising is still concentrated to weekends but is now more evenly divided between Saturday and Sunday. Earlier Sunday was more clearly the day of paying visits. The time used mainly for socialising is 2 hours 8 minutes on Sundays, 2 hours 7 minutes on Saturdays and 1 hour 5 minutes on weekdays. Nowadays men see their acquaintances during weekends less frequently than they did eight years ago.

In the time use study socialising can also be studied according to the amount of time spent in the company of others. During weekdays people spend about half an hour with their relatives and during weekends almost one and a half hour. Adults visit their relatives more readily than young people.

On weekdays, socialising with relatives take as much time as eight years ago. On weekends, however, 15 minutes less time is spent on seeing relatives than in 1979. Socialising with relatives has decreased the most in the age group under 25 year (24 minutes) and in the 45-64 age group (17 minutes). In the oldest age groups, especially women have reduced the time they spend with relatives on weekends.

People nowadays spend the same amount of time on visiting restaurants, dances and cafes as they did eight years ago. However, men visit restaurants and dances more often on Saturdays now than in 1979. Now 14 per cent of the men visit restaurants and dances on Saturdays, compared to 11 per cent in 1979. As before, about one tenth of all women visit restaurants or dances on Saturdays.

Has free time become more home-centred during this decade? Is free time increasingly being spent at home? In a time use study, the degree home-centredness of free time can be studied by looking at the place where free time is spent. In 1987, 62 per cent of all free time was spent at home. In 1979 the percentage was 63, which means that the home-centredness of free time has not increased but remained approximately unchanged. As in 1979, one tenth of the free time is spent in some other person's home. More than one fourth of all free time is spent at some other place than somebody's home. Women spend a greater part of their free time (64 per cent) at home than men do (60 per cent).

Reading

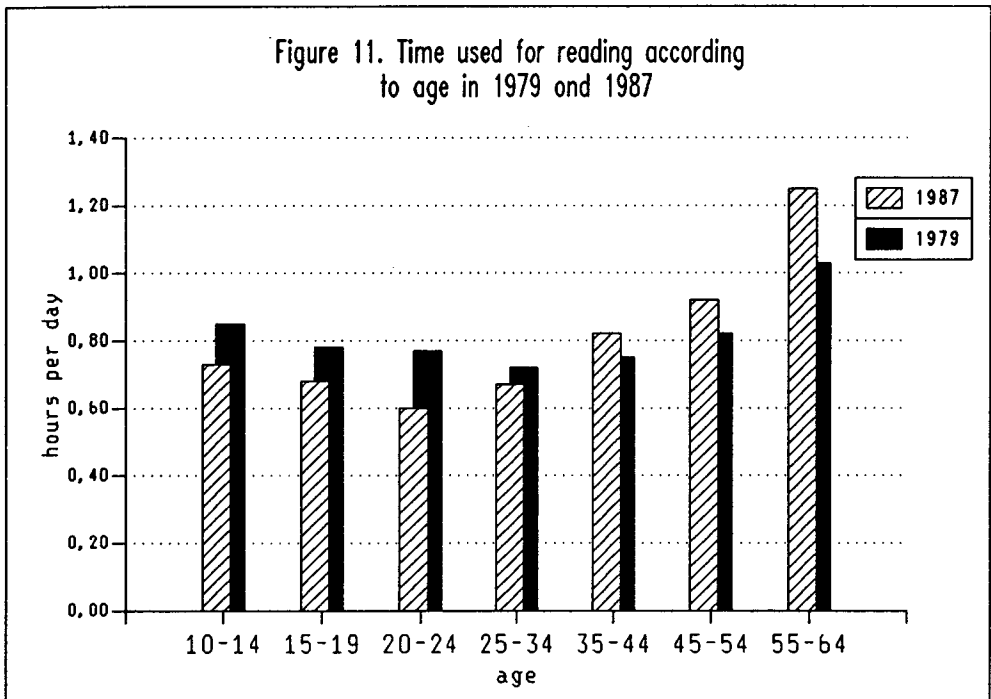
The share of the free time that was spent on reading remained 14 per cent. Although the share of TV watching free time has increased, it still has not infringed on the time used for reading. The time spent on reading remained the same on the part of men and increased a little on the part of women.

Of the time used for reading about 70 per cent is spent on reading newspapers and magazines and about 30 per cent on reading books. Men spend more time on reading newspapers and magazines than women do, whereas women read more books than men. Women use more time for reading books now than at the beginning of the 1980s.

The time spent by the young on reading declines with age up to the age of 25. After that, the trend turns upwards. Reading habits have changed. The population below 35 years of age use somewhat less for reading now than eight years ago. Older groups now read more than before. The increase in reading is greatest in the 55-64 year age group.

Among the young, the reading of newspapers and magazines has declined, whereas the reading of books has remained at the same level as before. In age group 20-24, however, there is a decline in the reading of both magazines and books. People in the 35-44 year age group spent more time reading books than eight years ago. People over 45 use more time both for book and newspaper reading than in 1979.

Of the gainfully employed, upper-level employees spend the most time on reading, about one hour a day, followed by lower-level employees (49 minutes a day). On the part of workers and self-employed persons the time used for reading varies from 39 minutes to 44 minutes. Reading has increased among lower-level employees, but decreased among workers.



Sports and outdoor recreation

The share of the free time that is used for sports and outdoor recreation is 10 per cent, or the same as in 1979. Men use an average of 44 minutes per day for physical activities. Women engage in physical activities significantly less than men, 27 minutes per day. Men use about the same amount of time on physical activities and sports as in 1979. The time used by women on sports and outdoor recreation has grown somewhat longer.

The amount of time available for physical activities and sports is greater during week-ends than on weekdays. Half the population engage in some form of physical activities or outdoor recreation on Sundays, 37 per cent on Saturdays and one third on weekdays.

Table 21. Sports and outdoor recreation engaged in on different days of the week by sex in 1979 and 1987. Hours and minutes per day

	1979	1987	Change
Weekdays			
Both sexes	0.26	0.29	+0.03
Men	0.33	0.36	+0.03
Women	0.19	0.22	+0.03
Saturdays			
Both sexes	0.46	0.44	-0.02
Men	1.05	0.58	-0.07
Women	0.28	0.31	+0.03
Sundays			
Both sexes	1.06	0.59	-0.07
Men	1.27	1.10	-0.17
Women	0.46	0.47	+0.01

Men's weekly rhythm of physical activities has changed. Men now use less time for physical activities during weekends than in 1979. The decrease is seven minutes on Saturdays and 17 minutes on Sundays. Men have reduced the time they use on Sundays for outdoor activities including walks, and outdoor life activities such as hunting, fishing and mushroom picking. On the other hand, unorganised physical activities such as jogging or biking has not declined on Sundays. Organised physical activities have increased somewhat on Sundays. Women show no such changes in their weekly rhythm. The amount of time used by women for physical activities has increased on weekdays, but remained largely unchanged on Saturdays and Sundays.

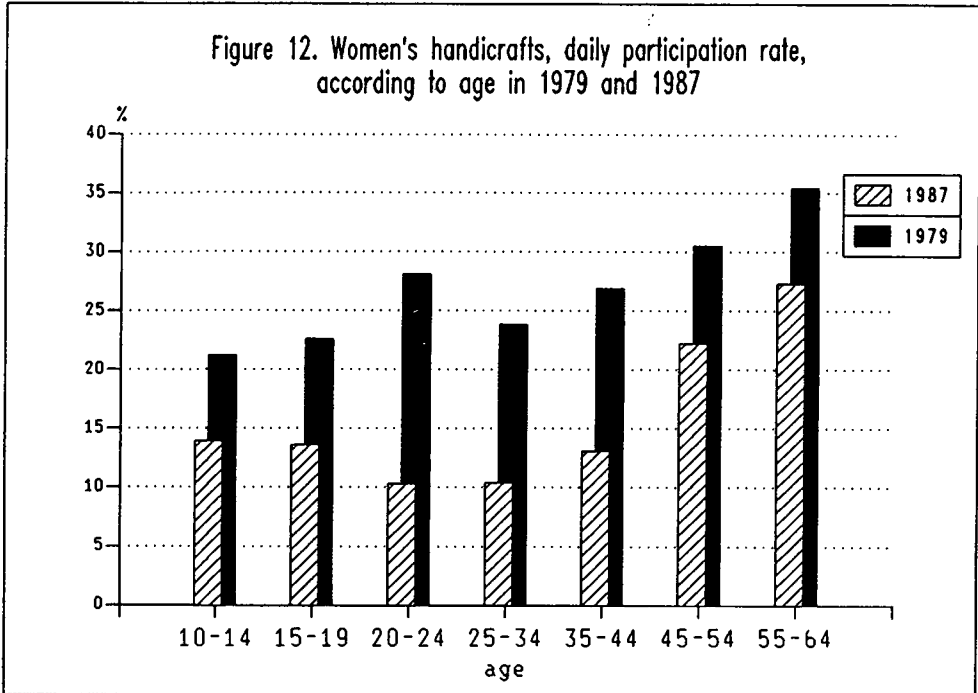
Other free-time activities

Television watching, socialising, reading and physical activities take up a total of three quarters of all free time. The remaining fourth is used for resting, free time drives, listening to radio, activity in organisations, entertainment, cultural services, studies and specific free time activities. Many of these activities are such that people do not typically engage in them every day of the week. This is why the average daily time reported for these activities is so short. In table 22 these activities are examined as percentages of participation. The table describes how large a part of the population was engaged in these activities on the average per day in 1979 and 1987.

Table 22. Participation in some free-time activities by sex in 1979 and 1987. Rates of daily participation in per cents

	Both sexes		Men		Women	
	1979	1987	1979	1987	1979	1987
Leisure-time studies at home	3,9	3,3	3,8	3,1	4,0	3,5
Leisure-time studies outside home	1,8	2,1	1,1	1,3	2,5	2,9
Activity in organisations	4,1	3,7	4,9	4,3	3,3	3,1
Religious activities	2,7	2,6	1,9	1,4	3,5	3,8
Sport events	1,2	1,4	1,9	1,9	0,6	0,8
Cinema	1,4	0,7	1,6	0,6	1,1	0,8
Theatre, concerts, museums	0,8	0,9	0,5	0,5	1,1	1,2
Libraries	2,3	2,4	2,1	2,0	2,5	2,8
Other entertainment and cultural services	0,7	1,0	0,5	0,9	0,8	1,0
Handicrafts	15,2	8,1	2,4	0,6	27,0	15,8
Artistic hobbies	5,3	5,6	4,4	4,2	6,2	6,9
Technical hobbies	1,1	2,4	1,6	3,9	0,7	1,0
Group games	5,4	5,4	6,7	6,0	4,3	4,8
Solitary games	4,4	4,9	3,8	4,4	5,0	5,4
Gambling	2,1	2,0	2,9	2,2	1,3	1,8
Listening to records and cassettes and recording	5,9	8,5	6,7	8,9	5,1	8,1
Correspondence	2,6	2,8	0,9	0,6	4,3	5,0
Other hobbies	1,6	2,3	1,4	1,6	1,9	3,1
Days studied	12 057	4 764	5 807	2 395	6 250	2 369

The greatest change is the decrease in women's handicrafts. In 1979, 27 per cent of the women did handicrafts daily, but only 16 per cent in 1987. The time used for handicrafts decreased from 23 minutes to 13 minutes per day. Even when handicrafts as secondary activity are included, the time used for doing handicrafts has decreased from 35 minutes to 21 minutes daily.



The greatest decline in handicrafts can be noted for home makers. As far as mothers with small children go, the rate of participation in handicrafts has collapsed. In 1979, 29 per cent were doing handicrafts daily, compared to only 12 per cent in 1987. Women's handicrafts decreased more in age group 20-44 than in other age groups. It looks like handicrafts has remained a common hobby only among women over 44.

Among men, technical hobbies have become common in the 1980s. About 4 per cent of the men were engaged in technical hobbies daily (compared to about two per cent in 1979). This increase was brought about by the onset of computers. According to the interview data of the time use study, 17 per cent of the households had a home computer in the autumn of 1987. If there is a computer at home, it is used at least now and then by three out of four men but only by less than one out of two women. Three out of four of the active users play games on the computer, one half use the computer for programming and one fifth use it for word processing.

Cinema going has decreased in the time since 1979. Especially men go less frequently to the cinema. It looks like the decline is concentrated to Sundays. In 1979 about

three per cent of the Finns went to the cinema on Sundays. The share of cinema viewers has decreased to about one per cent in 1987. On the other hand, video programme watching was most frequent on Sundays, which might have some impact on cinema going.

1979 was the peak year for cinema after the beginning of the 1970s. The amount of cinema visits totalled 10.1 million in that year. Cinema going showed a decline in the 1980s all the way up to 1986. Since then, the number of visits shows a slight increase every year. In 1987 the number of cinema visits totalled 6.5 million. (Mass Communication; the Finnish Film Foundation).

The listening to records and cassettes has increased in the 1980s. Both men and women now listen more to music than eight years ago.

Other changes in free time activities are the reduction of leisure-time studies at home and men's participation in religious activities.

Summary

The amount of free time has increased by an average of one hour per week in the 1980s. In 1987 the weekly free time was 41 hours. The amount of free time of men has remained unchanged, whereas that of women increased by two hours per week. Men still have more free time than women. The difference in amount of free time decreased from five hours to three hours.

The greatest change in the content of free time was the increase in watching television. The time spent on watching television increased by 23 minutes per day, whereas the time spent on resting decreased.

Equally much of the free time as in 1979 was spent on socialising, reading and sports. The reading of newspapers and magazines decreased among young people. The middle-aged spend more time reading newspapers, magazines and books than eight years ago.

Men go for walks and engage in outdoor life activities on weekends less readily than eight years ago.

Women's handicrafts shows a marked decrease. Where 27 per cent of the women did handicrafts on the day of the study in 1979, only 16 per cent did so in 1987.

Men go less frequently to the cinema than they did at the turn of the decade. The decrease is especially pronounced as far as Sunday cinema is concerned.

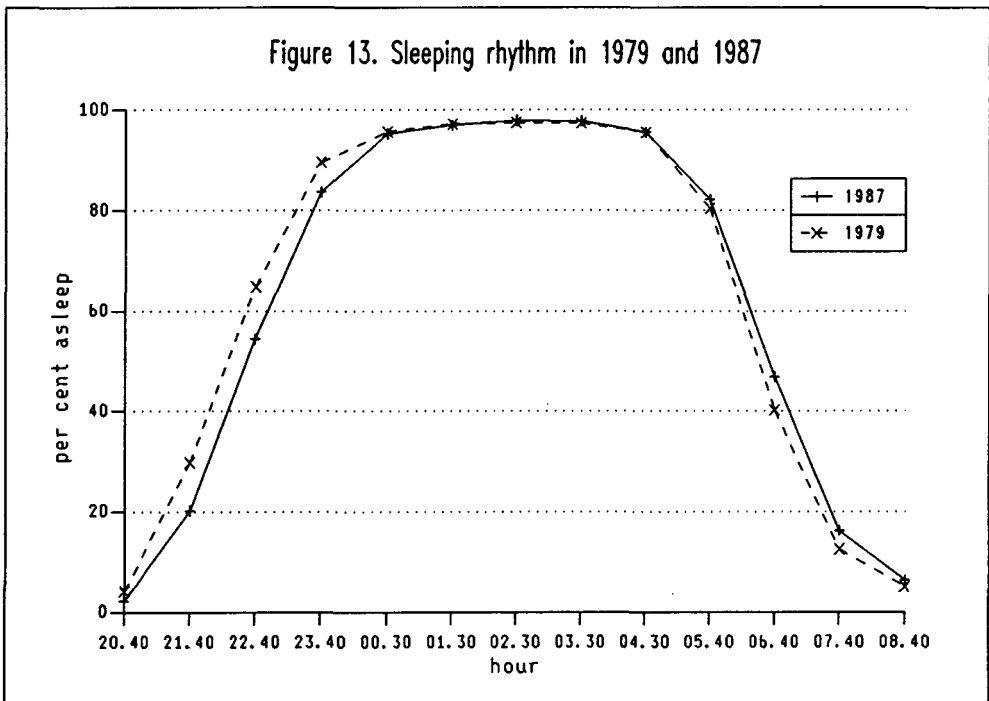
Free time has not become more home-centred in the 1980s. The share of free time spent at home is 62 per cent.

CHANGES IN DAILY RHYTHM

The purpose of time use studies is to find out how much time people spend on different activities. In addition to that, the timing of these activities is studied. This way the rhythm of time use, i.e. the daily rhythm, can be studied. In this chapter we try to find an answer to the question whether people's daily rhythm has changed since 1979. We will examine time use on weekdays, Saturdays and Sundays separately.

The weekday rhythm

There has been a slight change in the rhythm of people's daily life since 1979.



People nowadays retire half an hour later on weekdays. In 1979 half the population was asleep at 10:10, but only one third in 1987. The later sleep rhythm seems to be due to changes in TV watching habits. A growing share of the

population spend their evenings in front of the television set. The most noticeable increase in the number of television viewers can be found at the time of the 10 o'clock news, when 31 per cent of the population report TV watching as their primary activity, compared to only 17 per cent eight years earlier. The number of viewers has increased also at the time of the 8:30 news, at which time 43 per cent of the population watch television as their primary activity, compared to 35 per cent in 1979.

People sleep a little later on weekday mornings than before, but not so much as to compensate for the later evenings. People get seven minutes less sleep per night compared to eight years ago. Work begins a little later than at the turn of the decade, which is partly due to the growing number of white-collar workers. Working hours are increasingly concentrated to the hours from 9 to 4. Night work is done by about the same number of people as at the turn of the decade.

With more women being gainfully employed, shopping is increasingly being done at the end of the work day, even as late as 7 o'clock in the evening. At the same time the bulk of all domestic work is being done later and more readily in the interval between the 8:30 and the 10 o'clock TV news.

The Saturday rhythm

People stay up later than before on Friday evenings and sleep half an hour later on Saturday mornings than at the beginning of the 1980s. A growing number of people take a nap on Saturdays and stay up late in the evening. Saturday is a day off for more people than before. Shopping on Saturdays is becoming increasingly prevalent. The great majority do their shopping between 10 and 12, although afternoon shopping is becoming more popular as opening hours are extended.

On Saturdays, sports and outdoor recreation take place a little later than at the turn of the decade. Especially the share of person going jogging in the morning has decreased. Television watching shows a marked increase on Saturday nights after 8, and also on Saturdays people retire significantly later than at the turn of the decade.

The Sunday rhythm

On Sundays people sleep about half an hour later than on Saturdays. Half the population is still asleep at 8:30 on Sunday mornings and one fourth at 9:30. On Sundays, people sleep half an hour later on the average than in 1979.

People are doing significantly less physical exercise in the mornings than they did at the turn of the decade. The number of people doing morning exercises is now only three fourths of the number in 1979. In the afternoons physical exercise is done to the same extent as before, but on the whole, participation in physical exercise on Sundays has decreased, as we noticed already in the chapter on free time.

People go considerably less frequently to the cinema on Sunday afternoons and Sunday evenings than before. People also participate less in different kinds of events on Sundays: men participate less than before in religious activities and women frequent sports events less than before. Sunday afternoon visits are less frequent than at the turn of the decade.

What has taken the place of these activities? What are people doing on Sundays? Men do more domestic work. They participate in work related to food and cooking, clean the house, repair and maintain the car and take care of the children. Also the share of gainful employment has increased on Sundays. Watching television has increased the most: at least one out of ten Finns can be found watching TV at some time after 2:30 on a Sunday afternoon. At 6 o'clock the number of TV watchers has increased to include one out of five, and at 8:30 in the evening more than 50 per cent of the population is busy watching TV. In 1979 the greatest share of the population watching TV at the same time (the 8:30 news) was 39 per cent.

People retire half an hour later on Sunday evenings than in 1979.

Summary

The daily rhythm has changed somewhat during the period of eight years: people go to bed about half an hour later both on weekdays and on weekends. The reason for this is partly that people start their work days later than before. The main reason for the change in the daily rhythm is, however, a change in people's habits of watching television. Television plays an increasingly important role in

regulating people's use of time. The introduction of the 10 o'clock news has resulted in people staying up later at night.

The greatest change can be seen on Sundays. Sundays are more home-centered than before. People spend less time on physical exercise in the morning, on visits in the afternoon, on cinema and other kinds of participation. Instead, men do more domestic work and both men and women spend more time watching television. On Sundays people also spend more time than before on matters related to their gainful employment. There seems to be a convergence of the time use of Saturdays and Sundays. People now do gainful and domestic work also on Sunday, which earlier had a more distinct status of a day off.

A NORMAL DAY IN THE LIFE OF A FAMILY WITH CHILDREN

Finally we present a population group, for which time use is one of the most crucial problems of daily life, namely the gainfully employed parents of small children. The parental leave is now longer and parents may choose temporary part-time employment on account of child care. In this chapter we will discuss whether the situation of families with children has become any easier from the point of view of time use, and whether the total burden has diminished during these eight years.

The following question was asked to measure people's experience of being rushed for time:

"Do you feel that there are matters that you would like to attend to on regular weekdays, but that you have to refrain from because of a lack of time?"

According to the answers, families with children experience being rushed for time more clearly than other population groups. The answers indicate that 75 per cent of mothers of pre-school children and 68 per cent of the fathers experience being rushed for time.

What does a weekday of parents with small children look like? Has there been any change from 1979? According to the time use study, the work day of parents of pre-school children has not become any shorter for wage and salary earners. On the contrary, the average work day of mothers is now 45 minutes longer, and that of fathers half an hour longer. The gainful employment of the mother including travel takes eight hours daily on the average and that of the father more than nine hours, which means that the daily life of parents of small children has not become any easier, as far as gainful employment is considered.

What has happened to the amount of domestic work? It seems that the mothers have reduced their amount of domestic work by almost half an hour daily. Less time than before is spent on preparing meals, washing the dishes and caring for the children. On the other hand, the fathers spend almost ten minutes more time on doing domestic work on weekdays than they did at the turn of the decade and they participate more readily in preparing meals and caring for the children.

The total time spent on gainful and domestic work has grown more (41 minutes) for fathers than for mothers (18 minutes). In spite of this, the total work day of mothers (11 hours 36 minutes) is half an hour longer than that of fathers (11 hours 8 minutes). Both fathers and mothers are thus more burdened than before.

Table 23. The time use of (wage and salary earners) parents of pre-school children by sex in 1979 and 1987. Hours and minutes on workdays

	Men			Women		
	1979	1987	Change	1979	1987	Change
Primary employment	7.52	8.10	+0.18	6.37	7.20	+0.43
Secondary employment	0.08	0.17	+0.09	0.04	0.04	0.00
Travel between home and job	0.39	0.45	+0.06	0.35	0.37	+0.02
Gainful employment, total	8.39	9.12	+0.33	7.16	8.01	+0.45
Cooking and baking	0.12	0.18	+0.06	0.52	0.45	-0.07
Washing up	0.03	0.02	-0.01	0.18	0.11	-0.07
Cleaning	0.04	0.04	0.00	0.27	0.23	-0.04
Cloth upkeep	0.01	0.01	0.00	0.16	0.16	0.00
Home upkeep	0.08	0.11	+0.03	0.00	0.00	0.00
Gardening and pet care	0.03	0.03	0.00	0.03	0.03	0.00
Repair and maintenance of cars	0.08	0.04	-0.04	0.00	0.00	0.00
Other housework	0.10	0.07	-0.03	0.09	0.07	-0.02
Travel related to domestic work	0.03	0.06	+0.03	0.01	0.01	0.00
Housekeeping, total	0.52	0.56	+0.04	2.06	1.46	-0.20
Child care	0.28	0.33	+0.05	1.11	1.04	-0.07
Travel related to child care	0.05	0.05	0.00	0.13	0.14	+0.01
Child care, total	0.33	0.38	+0.05	1.24	1.18	-0.06
Shopping and errands	0.23	0.22	-0.01	0.32	0.31	-0.01
Sleep	7.39	7.29	-0.10	7.53	7.43	-0.10
Meals	1.17	1.08	-0.09	1.05	0.55	-0.10
Personal hygiene	0.38	0.41	+0.03	0.36	0.42	+0.06
Physical needs, total	9.34	9.18	-0.16	9.34	9.20	-0.14
Education	0.09	0.06	-0.03	0.07	0.02	-0.05
Participative activity	0.12	0.05	-0.07	0.03	0.11	+0.08
Sport and outdoor recreation	0.15	0.19	+0.04	0.07	0.10	+0.03
Entertainment and culture	0.05	0.03	-0.02	0.02	0.00	-0.02
Reading	0.36	0.28	-0.08	0.27	0.28	+0.01
Watching television	1.13	1.23	+0.10	0.51	1.00	+0.09
Socialising with family	0.18	0.17	-0.01	0.14	0.20	+0.06
Socialising with others	0.35	0.33	-0.02	0.42	0.36	-0.06
Handicrafts and woodwork	0.01	0.00	-0.01	0.12	0.07	-0.05
Other hobbies	0.08	0.07	-0.01	0.03	0.02	-0.01
Resting	0.15	0.04	-0.11	0.10	0.03	-0.07
Other free-time activity	0.12	0.09	-0.03	0.09	0.05	-0.04
Free time, total	3.55	3.34	-0.21	3.05	3.04	-0.01
Total	24.00	24.00		24.00	24.00	

What do parents of small children have to sacrifice because of longer hours of work? Time spent on sleep and on meals has been reduced by 10 minutes. Men have reduced their actual free time by 20 minutes, whereas the free time of women has remained the same because of a decrease in the amount of domestic work.

Fathers participate less in organisational activities and spend less time on studying and reading than before. Resting now increasingly takes place in front of the television set. Fathers do slightly more physical exercise after the end of the working day than earlier.

Although the amount of free time of mothers of small children has not changed, there are nevertheless certain changes in the way that time is used. While fathers have given up their organisational activities, mothers have clearly become more involved. Mothers, however, spend less time on studies and on handicrafts than before. Women also combine resting with television watching. Mothers, like fathers, spend slightly more time than before on doing physical exercise after the end of the working day.

Gainfully employed parents have reduced the amount of time they spend on socialising with their children by an average of 46 minutes on weekdays. After the end of the working day fathers spend a good three hours and mothers closer to six hours with their children.

How do the parents themselves experience their daily life? At the beginning of this chapter we noted that they are being rushed for time. On weekdays, they have to refrain from doing things they would like to do. What are these things they would like to do: more domestic work, more socialising with their children, or more time for their own free-time activities?

From the earlier time use study we know that there are families with small children who are under pressure to use more time for domestic work. We saw a clear relation between the length of the working day and the time spent on domestic work. The replies give a result along the same lines: one out of four of all mothers with a child of pre-school age would like to use more time for domestic work. Also people at other stages of the family cycle would like to have more time for domestic work, but the pressure to do so is not as great as in families with small children.

Table 24. Activity that gainfully employed parents with pre-school children would like to have more time for on weekdays. Figures in percentages (%)

Activity	Men	Women
Gainful employment	5	2
Domestic work of wick child care	17	23
Sport and outdoor recreation	4	4
Reading	16	15
Handicrafts and woodwork	9	9
Socialising with family	4	12
Cultural hobby	6	1
Studies	4	4
Meeting with acquaintances	2	3
Cultural services	2	2
Other	1	1
No lack of time	2	3
Total	32	25
Activities at home	100	100
some other place	40	50
	26	23

The lack of time most clearly restricts the use of the free time. One half of all the mothers feel that they do not have enough "time of their own". These wishes reflect partly a real lack of time, but partly also the fast pace of a family with children, which makes it impossible to withdraw to one's own hobbies. Reading, handicraft and artistic hobbies as well as e.g. machine sewing, all require peaceful surroundings. Physical exercise requires time off. Most of the wishes of women concern matters related to the home.

Men are also more home-centred when their children are under school age. At this stage men usually wish more time for domestic work, reading and socialising with the family.

Part of all parents with small children would like to use more of their time for gainful employment. Five per cent of the fathers and two per cent of the mothers would like to use more time for gainful employment. This probably reflects problems related to subsistence.

Mothers of pre-school children were gainfully employed to the same extent in 1987 as in 1979. The gainfully employed made up the same share, i.e. 78 per cent, but the number of part-time employed had decreased slightly, from 15 per cent to 12 per cent (Labour Force Surveys 1979 and 1987). Increasing the length of the parental leave to 10 months

made it a little easier to meet the demands of both work and family. Part-time employment is not, however, considered as a solution to the family's time use problems, although one third of all gainfully employed mothers and one tenth of all gainfully employed fathers according to the Labour Force Survey have expressed their wish to switch from full-time to part-time employment. The desire to work part-time has remained unchanged in the 1980s. Economic circumstances seem to regulate the basic structure of the time use of young families.

SUMMARY

Between 1 April 1987 and 31 March 1988 the Central Statistical Office of Finland collected a large research material for the second study of time use. In this publication, which is the first in a series of publications to be made on the basis of the research project, we describe the changes in the time use of the Finns during the eight years from the autumn of 1979 to the autumn of 1987.

In Finland the working time has been reduced in the 1980s both through longer annual leaves and shorter normal weekly working hours in three-shift work and in occupational groups with a normal 40-hour working week. Is the reduction of the working time reflected in the time use in the autumn of 1987? Has there been any increase in free time in the 1980s, and in what way has the structure of the free time changed? What has happened in the field of domestic work? Do men participate more in domestic work than before and is amount of domestic work done distributed more equally between men and women? These were some of the questions we asked of the new time use study.

The research material consists of data on the use of time during 4 764 days in the period from September to November 1987, which has been compared to the data from 12 057 days during the same period in 1979. The 10-64 year old respondents made diary entries with 10 minute intervals on their activities for two days running. This type of a research material contains less-than-average number of measuring errors, and is therefore well suited for examining changes in behaviour.

The basic structure of the population's time use has changed very little. Somewhat more time is used for gainful work in the autumn than earlier. Women do less domestic work, whereas men use more time for domestic work than before. School pupils and students use less time for actual studies than at the end of the 1970s. People sleep less than before and meals are more readily taken alongside other activities. The amount of free time of women has increased, whereas that of men has remained the same. Free time is increasingly dominated by the television.

Working time and the free time have been differentiated into, on the one hand, longer annual leaves, and, on the other hand, more intense work periods. During working weeks people do 1.3 hours more gainful work than at the turn of the decade. Both overtime and secondary work is done slightly more than before.

The increase in the working time is greater for gainfully employed men than for women. The length of the working week has increased from 44.1 hours to 45.5 hours for men and from 36.3 hours to 37.1 hours for women, including time used for overtime and secondary work as well as for travel between job and home. Slightly more time than before is used for travel between job and home. The shorter weekly working time can be discerned on the part of three-shift workers and lower-level employees, whereas self-employed persons and workers use more time for work than before.

School pupils' participation in gainful employment has not increased on a national level. Students, on the other hand, increasingly finance their studies by means of gainful work.

The amount of time that is used for domestic work is, on the level of the whole population, the same as at the turn of the decade. There are, however, some changes in the amount of domestic work of different population groups. The general trend is that those who have used most time on domestic work have reduced the time they use, whereas those who have done the least amount of domestic work now use more.

Women do less domestic work than earlier and men do more. The oldest women have reduced the time they use for domestic work the most, whereas young women have slightly increased their time used for domestic work. The increase in men's domestic work concerns not only the younger age groups, on the contrary, men in the oldest age group use more time for domestic work than men in other age groups. Men with administrative or clerical jobs have increased their amount of domestic work the most, whereas farmers on own account and workers have reduced theirs.

The content of domestic work has undergone some marked changes. Less time is spent on preparing meals and washing dishes than before, whereas more time is being spent on child care and shopping.

The total hours worked is defined as the total time that spent on gainful work, studies and domestic work. The population's total hours worked have remained the same from the autumn of 1979 to the autumn of 1987. The total weekly hours worked by women is four hours longer than that of men, compared to a difference of five hours at the turn of the decade. The somewhat smaller difference between the total hours worked by men and women is due to the fact that men do longer working weeks and women use less time for domestic work than before. The total length of the working day has increased by 15 minutes since 1979 and was 10.5 hours in 1987

Men have about the same amount of weekly free time as at the turn of the decade and women have two hours more free time than before. Men have an average of three hours more free

time than women, compared to a difference of five hours at the turn of the decade.

The greatest change in the content of free time is the change in television watching, which has increased by 23 minutes since the turn of the decade. The increase is greatest on part of the oldest age groups. Among the gainfully employed, workers spend most time on watching television. Men more readily sit in front of the television set than women.

Socialising, sports and outdoor recreation and reading take up about the same amount of time as earlier. Newspaper and magazine reading, however, has declined in younger age groups and increased among the middle-aged. Women's handicraft hobbies show a clear decline in the 1980s. Cinema going has also decreased and television and video viewing has presumably taken up its place.

Free time spent at home accounts for the same share of all free time as at the turn of the decade. In other words, free time is no more or no less home-centred than before.

Television seems to have changed the rhythm of the day. People retire about half an hour later and sleep less than at the turn of the decade. The Sunday rhythm shows the greatest changes. On Sundays people stay at home more readily than before, participating less in sports and outdoor recreational activities in the morning, and paying less visits and going less to the cinema and engaging less in other participational activities in the afternoons. People do more domestic work, watch more television and engage more in activities related to gainful work on Sundays. Sunday seems to have become more like an ordinary weekday.

People's use of time seems to change slowly. Some directions of change can still be observed. The reduction of the weekly working time has not had very much of effect, not even on the part of families with children. On the other hand we see a clear trend towards a differentiation between work and vacation. The second trend is towards a more equal sharing of the domestic work between different population groups. The third trend is that free time is becoming more and more television-centred, which can be seen in other industrialised countries as well.

The slow change in time use structure means that the results of this study can be used well into the 1990s. The 1987-88 time study material will be furthered analysed by the Central Statistical Office and other research institutions, the emphasis being on different sub-areas of time use and international comparisons between time use in Finland and in other countries.

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1. Use of time by 10–64-year olds (95 categories) by sex in 1979 and 1987, all days

		Both sexes			
		Time spent on activities		Percent participating	
		Hrs/min per day		%	
		1979	1987	1979	1987
01	Primary employment elsewhere than on own property	2.54	3.08	39,9	42,1
02	Secondary employment elsewhere than on own property	0.02	0.04	1,2	2,4
03–06	Agricultural and forestry work on own property	0.26	0.22	8,5	7,0
07	Other work-related time	0.02	0.01	9,9	6,9
08	Travels to job	0.16	0.17	36,7	38,7
01–08	Gainful employment, total	3.40	3.53	48,8	49,3
09	Cooking	0.33	0.28	62,0	61,3
10	Baking, preserving food	0.06	0.05	7,8	7,2
11	Washing up	0.13	0.10	41,1	36,2
12	Cleaning	0.19	0.20	43,8	42,9
13	Laundry work, ironing	0.08	0.07	17,7	18,8
14	Dressmaking and sewing	0.02	0.03	2,3	2,6
15	Care of clothing and footwear	0.01	0.00	3,1	1,2
16	Heating and water supply	0.06	0.05	12,1	11,0
17	Home repairs and construction and similar work	0.06	0.06	4,7	5,0
18	Gardening and pet care	0.08	0.08	15,8	16,3
19	Vehicle repair and maintenance	0.04	0.04	6,6	6,4
20	Assistance to family members	0.01	0.01	4,0	3,2
21	Assist. to member of another household	0.05	0.07	4,4	6,8
22	Other housework	0.05	0.03	17,3	13,5
23	Travels related to housework	0.02	0.05	6,8	12,7
09–23	Housekeeping, total	1.59	1.52	82,9	82,8
24	Child care and assistance	0.11	0.12	17,9	17,8
25	Reading to and playing with children	0.04	0.05	9,1	9,6
26	Accompanying children outdoors	0.01	0.01	2,3	2,0
27	Other forms of child care	0.00	0.00	0,5	0,9
28	Travels related to child care	0.01	0.02	4,7	7,2
24–28	Child care, total	0.17	0.20	20,5	21,6
29	Purchases	0.16	0.16	42,4	44,4
30	Services, offices and similar dealings	0.03	0.03	11,1	12,8
31	Health care services for children	0.00	0.00	0,4	0,6
32	Health care services for oneself or adult family member	0.02	0.01	2,7	2,5
33	Unspecified errands	0.01	0.02	1,6	4,1
34	Travels rel. to shopping and errands	0.08	0.11	23,6	40,0
29–34	Shopping and errands, total	0.29	0.35	48,2	52,5

Males				Females			
Time spent on activities		Percent participating		Time spent on activities		Percent participating	
Hrs/min per day		%		Hrs/min per day		%	
1979	1987	1979	1987	1979	1987	1979	1987
3.18	3.32	42,9	45,6	2.32	2.44	37,2	38,5
0.03	0.05	1,4	2,5	0.01	0.03	0,9	2,2
0.36	0.30	10,3	8,8	0.17	0.13	6,8	5,1
0.03	0.01	11,9	6,9	0.02	0.01	8,0	6,8
0.18	0.20	40,7	42,7	0.14	0.15	33,1	34,7
4.17	4.29	53,3	54,4	3.06	31.7	44,6	44,0
0.13	0.14	43,5	46,3	0.51	0.43	79,0	76,5
0.01	0.02	1,5	1,9	0.10	0.09	13,7	12,6
0.04	0.03	14,9	15,1	0.22	0.16	65,3	57,7
0.06	0.08	19,5	21,9	0.31	0.31	66,2	64,2
0.01	0.01	2,7	3,9	0.14	0.13	31,4	33,9
0.00	0.00	0,2	0,2	0.04	0.06	4,2	5,1
0.00	0.00	1,0	0,4	0.02	0.01	5,0	1,9
0.08	0.07	13,7	13,1	0.04	0.03	10,6	8,9
0.12	0.11	8,2	8,4	0.01	0.01	1,5	1,5
0.07	0.08	11,5	14,0	0.08	0.08	19,8	18,6
0.08	0.08	12,1	11,6	0.01	0.01	1,5	1,1
0.01	0.01	2,7	2,4	0.01	0.01	5,2	3,9
0.05	0.07	4,5	6,6	0.04	0.06	4,3	7,1
0.05	0.03	15,2	11,4	0.05	0.04	19,2	15,5
0.04	0.07	9,7	16,0	0.01	0.03	4,1	9,4
1.15	1.21	72,8	74,7	2.40	2.25	92,3	91,0
0.04	0.04	11,3	11,2	0.17	0.21	23,9	24,6
0.03	0.04	6,5	6,6	0.05	0.06	11,5	12,6
0.01	0.01	1,2	1,0	0.02	0.02	3,4	3,1
0.00	0.00	0,4	0,4	0.00	0.00	0,6	1,4
0.01	0.01	4,1	5,6	0.02	0.03	5,4	8,8
0.08	0.10	15,3	15,9	0.25	0.31	25,3	27,3
0.13	0.14	34,9	37,2	0.19	0.19	49,4	51,8
0.03	0.03	11,1	12,3	0.03	0.03	11,2	13,3
0.00	0.00	0,2	0,2	0.00	0.00	0,5	1,0
0.01	0.01	2,1	2,0	0.02	0.01	3,3	2,9
0.01	0.03	1,6	4,4	0.01	0.02	1,7	3,8
0.06	0.10	19,4	35,4	0.09	0.13	27,5	44,7
0.25	0.30	41,7	46,4	0.33	0.39	54,3	58,7

1. (Cont.)

		Both sexes		Percent participating	
		Time spent on activities		%	
		Hrs/min per day		%	
		1979	1987	1979	1987
35	Night sleep	8.24	8.18	99,9	99,9
36	Daytime sleep	0.06	0.07	8,2	9,4
37	Meals	1.20	1.13	99,7	99,4
38	Personal hygiene	0.30	0.32	93,0	93,8
39	Sauna	0.08	0.09	17,6	21,1
40	Bedridden due to illness	0.02	0.02	0,9	1,3
41	Other physical needs	0.01	0.01	4,6	3,9
42	Travels related to physical needs	0.01	0.02	6,5	9,2
35-42	Physical needs, total	10.33	10.23	99,9	100,0
43	Studying at educational institution	0.50	0.43	15,2	13,3
44	Homework and studying at home	0.14	0.11	15,9	13,1
45	Travels to and from school	0.07	0.06	14,9	13,3
46	Leisure-time studies at home	0.02	0.02	3,9	3,3
47	Leisure-time studies outside home	0.02	0.02	1,8	2,1
48	Travels rel. to leisure-time studies	0.01	0.01	1,6	1,9
49	Unspecified studies	0.00	—	0,5	—
43-49	Education, total	1.16	1.05	23,4	20,8
50	Activity in organizations	0.05	0.05	4,1	3,7
51	Religious activities	0.03	0.02	2,7	2,6
52	Travels related to participative activity	0.02	0.02	4,3	4,0
50-52	Participative activity, total	0.10	0.08	6,8	6,2
53	Outdoor activity, walking	0.14	0.12	22,5	18,7
54	Unorganized sport activity	0.08	0.10	12,7	14,1
55	Organized sport in organizations	0.03	0.03	2,9	3,2
56	Hunting, fishing, gathering mushrooms	0.07	0.07	3,8	4,1
57	Unspecified sport activity	0.00	0.01	1,2	2,8
58	Travels rel. to sport and outdoor recr.	0.03	0.04	6,8	9,6
53-58	Sport and outdoor recreation, total	0.34	0.36	37,3	36,5
59	Sport events	0.02	0.02	1,2	1,4
60	Cinema	0.02	0.01	1,4	0,7
61	Theatre, concerts, museums	0.01	0.01	0,8	0,9
62	Libraries	0.01	0.01	2,3	2,4
63	Other entertainm. a. cultural services	0.01	0.01	0,7	1,0
64	Travels related to entertainment and culture	0.02	0.01	4,7	2,1
59-64	Entertainment and culture, total	0.07	0.08	6,1	6,1
65	Newspapers	0.15	0.18	48,9	51,5
66	Magazines	0.08	0.08	19,1	18,2
67	Books	0.14	0.14	19,3	20,1
68	Unspecified reading	0.12	0.09	28,7	25,4
65-68	Reading, total	0.48	0.49	78,2	77,4

Males				Females			
Time spent on activities		Percent participating		Time spent on activities		Percent participating	
Hrs/min per day		%		Hrs/min per day		%	
1979	1987	1979	1987	1979	1987	1979	1987
8.24	8.16	99,9	99,9	8.25	8.20	99,9	99,9
0.07	0.08	9,3	11,5	0.05	0.05	7,1	7,2
1.23	1.17	99,6	99,5	1.16	1.09	99,7	99,3
0.26	0.28	90,9	91,7	0.34	0.37	95,0	95,9
0.09	0.10	18,4	23,0	0.08	0.07	16,8	19,3
0.02	0.03	0,7	1,4	0.03	0.02	1,1	1,2
0.01	0.01	4,8	3,5	0.01	0.01	4,5	4,3
0.02	0.03	9,2	12,5	0.01	0.01	4,0	5,8
10.35	10.25	99,9	100,0	10.32	10.21	99,9	100,0
0.50	0.42	14,9	12,6	0.50	0.45	15,4	14,1
0.13	0.09	14,8	11,4	0.16	0.13	16,9	14,7
0.06	0.06	14,7	12,5	0.08	0.06	15,1	14,1
0.02	0.02	3,8	3,1	0.02	0.02	4,0	3,5
0.01	0.02	1,1	1,3	0.03	0.03	2,5	2,9
0.00	0.00	1,0	1,1	0.01	0.01	2,3	2,6
0.00	-	0,5	-	0.00	-	0,5	-
1.13	1.01	22,5	19,5	1.19	1.10	24,2	22,2
0.07	0.06	4,9	4,3	0.04	0.04	3,3	3,1
0.03	0.01	1,9	1,4	0.03	0.03	3,5	3,8
0.02	0.02	4,6	3,6	0.02	0.02	4,1	4,4
0.11	0.08	6,7	5,7	0.08	0.08	6,8	6,7
0.14	0.10	21,9	16,5	0.13	0.13	23,0	20,9
0.10	0.13	14,2	15,1	0.06	0.06	11,4	13,1
0.04	0.05	3,8	3,8	0.02	0.02	2,1	2,5
0.12	0.11	6,4	6,0	0.02	0.02	1,4	2,2
0.01	0.01	1,8	3,5	0.00	0.01	0,6	2,0
0.04	0.05	9,1	12,0	0.02	0.03	4,6	7,1
0.45	0.44	40,4	37,6	0.24	0.27	34,4	35,3
0.03	0.03	1,9	1,9	0.01	0.01	0,6	0,8
0.02	0.01	1,6	0,6	0.01	0.01	1,1	0,8
0.01	0.00	0,5	0,5	0.01	0.01	1,1	1,2
0.01	0.01	2,1	2,0	0.01	0.01	2,5	2,8
0.00	0.01	0,5	0,9	0.01	0.01	0,8	1,0
0.02	0.01	5,1	2,5	0.02	0.01	4,4	1,7
0.08	0.08	6,4	5,7	0.06	0.08	6,0	6,5
0.17	0.20	50,1	53,1	0.13	0.16	47,8	49,9
0.08	0.08	17,4	17,2	0.08	0.07	20,8	19,3
0.13	0.11	16,0	14,5	0.15	0.18	22,4	25,8
0.14	0.10	31,0	25,9	0.10	0.08	26,5	24,8
0.51	0.50	78,0	76,5	0.45	0.48	78,5	78,4

1. (Cont.)

		Both sexes		Percent participating	
		Time spent on activities		%	
		Hrs/min per day		%	
		1979	1987	1979	1987
69	Listening to radio	0.08	0.10	17,8	20,1
70	Watching television	1.18	1.41	72,1	81,6
69-70	Radio and tv, total	1.26	1.51	76,7	85,1
71-72	Socializing with family members	0.12	0.12	27,8	30,0
73	Visiting acquaintances	0.25	0.24	26,6	26,1
74	Socializing with acquaintances at home	0.15	0.12	20,0	18,7
75	Socializing with acquaintances outdoors	0.05	0.05	7,7	8,1
76	Telephone conversations	0.04	0.06	19,2	24,3
77	Visits to restaurants and dances	0.07	0.07	5,0	5,0
78	Visiting cafes and the like	0.01	0.01	2,3	2,3
79	Other socializing	0.02	0.03	4,1	7,0
80	Travelling related to socializing	0.12	0.13	26,4	29,8
71-80	Socializing, total	1.23	1.23	70,2	73,1
81	Handicrafts	0.13	0.07	15,2	8,1
82	Playing and instrument, drawing, etc.	0.03	0.04	5,3	5,6
83	Collecting, technical hobbies	0.01	0.02	1,1	2,4
84	Group games	0.04	0.04	5,4	5,4
85	Solitary games	0.02	0.02	4,4	4,9
86	Gambling	0.01	0.01	2,1	2,0
87	Records and cassettes	0.03	0.04	5,9	8,5
88	Correspondence	0.01	0.01	2,6	2,8
89	Other hobbies	0.01	0.01	1,6	2,3
90	Travels related to hobbies	0.00	0.01	1,3	2,0
81-90	Hobbies, total	0.27	0.26	34,9	32,6
91	Resting	0.27	0.12	46,0	26,2
92	Travelling	0.06	0.07	4,2	4,7
93	Free-time drives	0.02	0.04	3,0	4,2
94	Unspecified free-time	0.04	0.05	13,9	14,5
91-94	Other free-time activity, total	0.40	0.28	56,9	41,9
99	Unspecified time use	0.02	0.03	3,4	1,8
01-99	Total	24.00	24.00	99,9	100,0
Population		3506700	3673537		
Diary days		12057	4764		

Males				Females			
Time spent on activities		Percent participating		Time spent on activities		Percent participating	
Hrs/min per day		%		Hrs/min per day		%	
1979	1987	1979	1987	1979	1987	1979	1987
0.10	0.12	20,4	21,6	0.06	0.08	15,5	18,6
1.27	1.51	74,4	83,8	1.10	1.31	70,0	79,5
1.37	2.03	79,2	87,1	1.16	1.39	74,5	83,0
0.12	0.11	25,0	26,2	0.13	0.13	30,3	33,8
0.24	0.22	24,6	23,6	0.26	0.26	28,5	28,7
0.12	0.09	15,4	14,2	0.17	0.16	24,3	23,3
0.07	0.04	9,0	7,2	0.04	0.05	6,4	8,9
0.02	0.03	11,1	14,2	0.06	0.09	26,7	34,6
0.09	0.09	6,0	6,2	0.06	0.05	4,0	3,8
0.02	0.02	3,1	3,3	0.01	0.01	1,6	1,3
0.02	0.04	4,3	7,7	0.02	0.02	3,8	6,2
0.13	0.13	26,9	29,0	0.11	0.13	25,9	30,7
1.22	1.16	65,1	66,1	1.24	1.30	75,1	80,2
0.02	0.00	2,4	0,6	0.23	0.13	27,0	15,8
0.03	0.03	4,4	4,2	0.04	0.05	6,2	6,9
0.01	0.04	1,6	3,9	0.00	0.00	0,7	1,0
0.05	0.05	6,7	6,0	0.02	0.03	4,3	4,8
0.02	0.02	3,8	4,4	0.02	0.02	5,0	5,4
0.01	0.01	2,9	2,2	0.00	0.01	1,3	1,8
0.03	0.05	6,7	8,9	0.02	0.04	5,1	8,1
0.00	0.00	0,9	0,6	0.02	0.02	4,3	5,0
0.01	0.01	1,4	1,6	0.01	0.01	1,9	3,1
0.01	0.00	1,5	2,0	0.00	0.01	1,1	1,9
0.18	0.21	24,9	25,7	0.36	0.31	44,2	39,6
0.30	0.14	45,4	26,5	0.25	0.10	46,6	25,9
0.06	0.08	4,3	4,5	0.06	0.07	4,2	4,9
0.04	0.05	4,5	5,3	0.01	0.03	1,7	3,0
0.05	0.06	14,7	15,2	0.04	0.04	13,2	13,9
0.44	0.32	57,4	42,9	0.36	0.24	56,6	41,0
0.03	0.03	3,5	1,7	0.02	0.03	3,3	1,8
24.0	24.00	99,9	100,0	24.00	24.0	99,9	100,0
1681900	1851213			1824800	1822324		
5807	2395			6250	2369		

**2. Use of time by 10–64-year olds (26 categories) by day of the week
in 1979 and 1987, males**

		Weekdays (Mon – Fri)			
		Time spent on activities		Percent participating	
		Hrs/min per day		%	
		1979	1987	1979	1987
01	Gainful employment	5.03	5.15	64,2	65,3
02	Travels to job	0.23	0.25	52,1	55,1
01–02	Gainful employment, total	5.26	5.41	64,2	65,5
03	Household work	0.31	0.30	57,7	58,6
04	Maintenance	0.23	0.22	25,3	25,8
05	Other housework	0.09	0.09	18,3	16,7
06	Child care	0.07	0.08	14,1	14,2
07	Shopping and errands	0.21	0.22	45,7	49,2
08	Travels related to domestic work	0.12	0.18	30,8	48,9
03–08	Domestic work, total	1.42	1.50	81,5	84,6
09	Sleep	8.14	8.06	100,0	99,9
10	Meals	1.23	1.16	99,8	99,5
11	Personal hygiene	0.39	0.43	94,8	95,3
09–11	Physical needs, total	10.15	10.05	100,0	100,0
12	Studying	1.25	1.09	21,8	18,4
13	Travels to and from school	0.09	0.08	20,7	17,5
14	Leisure-time studies	0.05	0.04	5,2	4,6
12–14	Education, total	1.38	1.21	26,4	22,4
15	Participative activity	0.08	0.06	6,4	5,5
16	Sport and outdoor recreation	0.30	0.32	35,4	34,7
17	Entertainment and culture	0.04	0.04	5,2	4,6
18	Reading	0.49	0.46	78,4	76,2
19	Listening to radio	0.09	0.11	19,5	21,3
20	Watching television	1.13	1.36	72,1	82,1
21	Socializing with family	0.11	0.10	25,0	26,3
22	Socializing with acquaintances	0.43	0.40	46,9	48,2
23	Hobbies	0.16	0.18	23,5	23,9
24	Other free-time activity	0.31	0.16	51,3	35,6
25	Travels related to free time	0.21	0.23	37,7	41,8
15–25	Free time, total	4.55	5.01	99,1	98,9
26	Unspecified time use	0.03	0.02	3,6	1,6
01–26	Total	24.00	24.00	100,0	100,0
Diary days		4166	1724		

Saturdays				Sundays			
Time spent on activities		Percent participating		Time spent on activities		Percent participating	
Hrs/min per day		%		Hrs/min per day		%	
1979	1987	1979	1987	1979	1987	1979	1987
1.44	1.33	29,0	27,3	1.02	1.14	23,5	26,2
0.07	0.06	15,6	13,1	0.03	0.04	9,0	10,0
1.50	1.39	29,1	27,3	1.05	1.18	23,7	26,2
0.52	0.52	67,2	68,4	0.32	0.42	59,0	66,4
0.42	0.44	35,2	39,4	0.32	0.36	28,7	33,5
0.20	0.20	26,1	25,9	0.14	0.14	27,8	24,6
0.09	0.10	13,7	12,1	0.10	0.12	13,7	13,8
0.23	0.25	45,9	50,1	0.04	0.06	14,3	19,6
0.14	0.23	33,1	52,2	0.05	0.11	12,8	31,9
2.40	2.55	87,8	91,4	1.37	2.01	78,3	84,4
8.45	8.37	100,0	100,0	9.47	9.39	100,0	100,0
1.25	1.23	98,9	99,5	1.23	1.14	99,6	99,3
0.56	0.57	95,2	96,4	0.34	0.39	89,9	93,1
11.05	10.57	100,0	100,0	11.44	11.32	100,0	100,0
0.07	0.04	4,3	4,3	0.14	0.11	15,2	14,5
0.00	-	0,1	-	0.00	0.00	0,1	0,4
0.02	0.04	3,0	2,3	0.04	0.02	3,7	3,3
0.09	0.08	7,3	6,6	0.18	0.13	18,9	17,7
0.13	0.09	6,9	5,3	0.13	0.10	8,2	6,9
1.00	0.50	43,6	38,7	1.21	1.03	60,5	50,8
0.09	0.10	6,7	7,8	0.16	0.12	11,0	9,1
0.53	0.59	76,3	75,6	1.04	0.59	78,2	79,1
0.12	0.13	22,1	21,3	0.13	0.15	22,8	23,7
2.08	2.27	77,9	84,5	1.58	2.32	82,4	91,2
0.13	0.10	22,0	23,1	0.14	0.14	28,3	28,6
1.40	1.31	63,0	64,4	1.35	1.19	69,5	66,1
0.21	0.27	25,1	29,2	0.27	0.28	31,5	30,4
0.42	0.22	56,6	39,0	0.44	0.36	58,0	44,1
0.44	0.58	53,6	61,3	1.05	1.06	63,4	67,4
8.14	8.16	99,7	99,7	9.13	8.53	99,9	99,6
0.02	0.05	3,6	2,5	0.03	0.02	3,1	1,6
24.00	24.00	100,0	100,0	24.00	24.00	100,0	100,0
837	354			804	317		

**3. Use of time by 10–64-year olds (26 categories) by day of the week
in 1979 and 1987, females**

		Weekdays (Mon – Fri)			
		Time spent on activities		Percent participating	
		Hrs/min per day		%	
		1979	1987	1979	1987
01	Gainful employment	3.40	3.51	54,0	54,1
02	Travels to job	0.18	0.20	42,6	44,8
01–02	Gainful employment, total	3.58	4.11	54,2	54,1
03	Household work	2.10	1.54	89,0	88,1
04	Maintenance	0.10	0.08	21,4	19,5
05	Other housework	0.10	0.10	25,9	24,5
06	Child care	0.24	0.30	25,7	28,2
07	Shopping and errands	0.28	0.29	62,5	65,5
08	Travels related to domestic work	0.14	0.20	38,1	59,0
03–08	Domestic work, total	3.35	3.32	94,8	95,3
09	Sleep	8.13	8.06	100,0	99,9
10	Meals	1.14	1.07	99,7	99,4
11	Personal hygiene	0.45	0.46	97,0	98,4
09–11	Physical needs, total	10.12	10.00	100,0	100,0
12	Studying	1.29	1.17	22,6	20,8
13	Travels to and from school	0.11	0.09	21,1	19,6
14	Leisure-time studies	0.07	0.07	6,5	7,1
12–14	Education, total	1.46	1.32	28,0	26,0
15	Participative activity	0.06	0.07	6,7	7,1
16	Sport and outdoor recreation	0.18	0.20	30,3	32,1
17	Entertainment and culture	0.03	0.03	5,1	5,6
18	Reading	0.43	0.46	79,2	78,8
19	Listening to radio	0.05	0.07	14,1	16,5
20	Watching television	0.55	1.18	66,0	77,7
21	Socializing with family	0.12	0.13	30,4	34,3
22	Socializing with acquaintances	0.47	0.50	59,8	65,6
23	Hobbies	0.35	0.28	44,3	37,8
24	Other free-time activity	0.26	0.13	51,4	34,3
25	Travels related to free time	0.17	0.19	32,5	39,0
15–25	Free time, total	4.28	4.44	99,6	99,4
26	Unspecified time use	0.02	0.02	3,3	1,3
01–26	Total	24.00	24.00	99,9	100,0
Population		1308300	1264900		
Diary days		4519	1649		

Saturdays				Sundays			
Time spent on activities		Percent participating		Time spent on activities		Percent participating	
Hrs/min per day		%		Hrs/min per day		%	
1979	1987	1979	1987	1979	1987	1979	1987
1.05	1.04	22,5	19,9	0.43	0.52	17,9	18,0
0.05	0.04	12,1	10,1	0.03	0.03	5,8	8,8
1.10	1.08	22,5	19,9	0.47	0.55	18,0	18,0
2.59	2.29	93,0	88,0	2.19	2.10	92,6	93,7
0.11	0.12	22,6	21,1	0.11	0.13	23,6	24,0
0.15	0.13	27,3	24,6	0.11	0.10	27,2	22,4
0.22	0.24	21,5	20,4	0.26	0.26	26,3	23,8
0.29	0.35	53,4	58,9	0.03	0.06	10,2	18,9
0.11	0.20	33,1	54,9	0.02	0.09	7,7	24,6
4.27	4.12	97,3	95,0	3.12	3.14	95,2	95,8
8.46	8.45	99,9	99,8	9.36	9.35	99,8	100,0
1.19	1.12	99,8	98,6	1.24	1.12	99,9	99,5
1.02	1.04	97,2	98,2	0.41	0.43	92,9	94,9
11.08	11.01	100,0	100,0	11.41	11.30	100,0	100,0
0.06	0.08	6,4	7,5	0.16	0.16	16,4	14,1
0.00	0.00	0,3	0,6	-	-	-	-
0.02	0.01	3,3	2,5	0.05	0.02	4,6	2,4
0.08	0.10	9,5	9,2	0.21	0.18	20,3	16,0
0.08	0.05	5,4	4,2	0.12	0.08	8,6	7,6
0.27	0.27	36,7	35,8	0.44	0.41	53,0	50,5
0.07	0.12	5,6	9,2	0.13	0.07	10,3	7,9
0.46	0.47	74,5	75,5	0.57	1.01	78,9	79,1
0.09	0.09	18,3	21,4	0.11	0.16	19,6	26,3
2.01	2.09	81,5	83,7	1.35	1.55	78,7	84,0
0.12	0.11	25,6	27,2	0.17	0.16	34,3	37,7
1.32	1.37	70,0	76,2	1.39	1.40	80,0	82,3
0.34	0.35	42,0	43,2	0.38	0.37	45,4	44,6
0.32	0.15	57,0	35,4	0.41	0.20	61,9	45,9
0.36	0.59	46,6	59,3	0.51	0.56	60,1	62,8
7.05	7.27	99,7	99,5	7.56	7.58	99,9	99,7
0.03	0.02	3,2	2,3	0.03	0.05	3,3	3,6
24.00	24.00	100,0	100,0	24.00	24.00	100,0	100,0
257100	269100			259400	288300		
870	347			863	373		

4. Use of time by 10–64-year olds (26 categories) by age in 1979 and 1987, both sexes

	Hrs/min per day				
	Total		Age		
	1979	1987	10–14	1979	1987
01 Gainful employment	3.25	3.36	0.05	0.03	
02 Travels to job	0.16	0.17	0.00	0.00	
01–02 Gainful employment, total	3.41	3.53	0.05	0.03	
03 Household work	1.28	1.18	0.18	0.16	
04 Maintenance	0.18	0.18	0.05	0.06	
05 Other housework	0.11	0.11	0.06	0.10	
06 Child care	0.16	0.18	0.02	0.05	
07 Shopping and errands	0.22	0.23	0.11	0.11	
08 Travels related to domestic work	0.11	0.18	0.05	0.08	
03–08 Domestic work, total	2.47	2.47	0.47	0.56	
09 Sleep	8.30	8.24	9.41	9.32	
10 Meals	1.20	1.13	1.10	1.05	
11 Personal hygiene	0.44	0.46	0.36	0.40	
09–11 Physical needs, total	10.34	10.23	11.28	11.17	
12 Studying	1.05	0.55	4.23	4.17	
13 Travels to and from school	0.07	0.06	0.27	0.26	
14 Leisure-time studies	0.05	0.05	0.02	0.05	
12–14 Education, total	1.17	1.05	4.52	4.47	
15 Participative activity	0.08	0.07	0.11	0.05	
16 Sport and outdoor recreation	0.32	0.32	0.59	1.03	
17 Entertainment and culture	0.06	0.05	0.09	0.08	
18 Reading	0.48	0.49	0.51	0.44	
19 Listening to radio	0.08	0.10	0.04	0.03	
20 Watching television	1.18	1.41	1.32	1.49	
21 Socializing with family	0.12	0.12	0.12	0.10	
22 Socializing with acquaintances	1.00	0.58	1.13	0.59	
23 Hobbies	0.27	0.25	0.51	1.02	
24 Other free-time activity	0.32	0.17	0.17	0.15	
25 Travels related to free time	0.27	0.32	0.28	0.35	
15–25 Free time, total	5.39	5.49	6.46	6.54	
26 Unspecified time use	0.02	0.03	0.02	0.03	
01–26 Total	24.00	24.00	24.00	24.00	
Population	3506700	3673537	338900	315596	
Diary days	12057	4764	1419	562	

15-24		25-44		45-64	
1979	1987	1979	1987	1979	1987
2.12	2.22	4.42	4.48	3.40	3.39
0.11	0.13	0.22	0.24	0.15	0.16
2.23	2.34	5.05	5.12	3.55	3.55
0.46	0.40	1.37	1.26	2.13	1.49
0.11	0.11	0.21	0.18	0.25	0.27
0.08	0.09	0.11	0.09	0.14	0.16
0.11	0.12	0.32	0.35	0.03	0.02
0.16	0.19	0.24	0.25	0.26	0.26
0.09	0.16	0.14	0.21	0.12	0.19
1.40	1.47	3.19	3.15	3.32	3.19
8.49	8.50	8.13	8.06	8.17	8.13
1.13	1.04	1.19	1.12	1.28	1.21
0.44	0.49	0.44	0.46	0.46	0.47
10.46	10.44	10.17	10.05	10.30	10.21
2.45	2.29	0.08	0.10	0.01	0.00
0.18	0.17	0.01	0.01	0.00	0.00
0.06	0.05	0.06	0.05	0.04	0.04
3.09	2.51	0.15	0.16	0.06	0.05
0.07	0.05	0.08	0.08	0.09	0.08
0.31	0.30	0.26	0.26	0.33	0.33
0.08	0.06	0.06	0.05	0.03	0.04
0.47	0.38	0.44	0.44	0.55	1.05
0.07	0.05	0.05	0.06	0.14	0.21
1.15	1.40	1.13	1.33	1.24	1.51
0.08	0.09	0.15	0.15	0.10	0.10
1.19	1.11	0.53	0.54	0.50	0.55
0.32	0.37	0.20	0.16	0.27	0.21
0.24	0.13	0.27	0.13	0.50	0.26
0.42	0.49	0.25	0.29	0.20	0.25
5.59	6.02	5.02	5.10	5.54	6.17
0.02	0.02	0.03	0.02	0.03	0.03
24.00	24.00	24.00	24.00	24.00	24.00
757300	706113	1411000	1584311	991900	1067517
2557	879	4708	1990	3345	1333

5. Use of time by 10–64-year olds (26 categories) by age in 1979 and 1987, males

		Hrs/min per day			
		Total		Age	
				10–14	
		1979	1987	1979	1987
01	Gainful employment	4.00	4.09	0.07	0.03
02	Travels to job	0.18	0.20	0.00	–
01–02	Gainful employment, total	4.18	4.29	0.07	0.03
03	Household work	0.34	0.35	0.09	0.10
04	Maintenance	0.27	0.27	0.06	0.10
05	Other housework	0.11	0.12	0.06	0.12
06	Child care	0.08	0.09	0.01	0.03
07	Shopping and errands	0.19	0.20	0.10	0.11
08	Travels related to domestic work	0.11	0.18	0.04	0.08
03–08	Domestic work, total	1.50	2.01	0.38	0.53
09	Sleep	8.32	8.24	9.47	9.34
10	Meals	1.23	1.17	1.09	1.05
11	Personal hygiene	0.40	0.45	0.31	0.37
09–11	Physical needs, total	10.35	10.25	11.27	11.16
12	Studying	1.03	0.51	4.27	4.07
13	Travels to and from school	0.06	0.06	0.28	0.26
14	Leisure-time studies	0.04	0.04	0.01	0.02
12–14	Education, total	1.14	1.01	4.56	4.34
15	Participative activity	0.10	0.07	0.11	0.04
16	Sport and outdoor recreation	0.42	0.39	1.14	1.21
17	Entertainment and culture	0.07	0.06	0.10	0.07
18	Reading	0.52	0.50	0.48	0.42
19	Listening to radio	0.10	0.12	0.04	0.02
20	Watching television	1.27	1.51	1.37	1.59
21	Socializing with family	0.12	0.11	0.09	0.08
22	Socializing with acquaintances	0.59	0.53	1.11	0.50
23	Hobbies	0.18	0.20	0.41	1.01
24	Other free-time activity	0.35	0.20	0.17	0.19
25	Travels related to free time	0.31	0.34	0.29	0.36
15–25	Free time, total	6.01	6.02	6.50	7.09
26	Unspecified time use	0.03	0.03	0.02	0.05
01–26	Total	24.00	24.00	24.00	24.00
Population		1681900	1851213		161512
Diary days		5807	2395	721	299

15-24		25-44		45-64	
1979	1987	1979	1987	1979	1987
2.33	2.52	5.30	5.30	4.21	4.08
0.12	0.15	0.25	0.27	0.18	0.17
2.45	3.07	5.54	5.57	4.39	4.26
0.20	0.17	0.34	0.38	0.53	0.49
0.18	0.16	0.31	0.27	0.35	0.40
0.07	0.10	0.11	0.09	0.15	0.16
0.03	0.01	0.15	0.17	0.02	0.03
0.13	0.14	0.21	0.23	0.23	0.23
0.08	0.15	0.13	0.20	0.13	0.20
1.10	1.13	2.07	2.14	2.21	2.30
8.56	8.57	8.09	8.03	8.19	8.15
1.17	1.05	1.23	1.18	1.34	1.26
0.38	0.46	0.42	0.46	0.43	0.44
10.51	10.48	10.14	10.06	10.36	10.24
2.28	2.15	0.10	0.12	0.00	-
0.15	0.16	0.01	0.01	0.00	-
0.05	0.04	0.05	0.04	0.04	0.04
2.48	2.35	0.16	0.17	0.04	0.04
0.06	0.04	0.10	0.08	0.10	0.08
0.41	0.39	0.33	0.32	0.44	0.39
0.10	0.06	0.07	0.06	0.03	0.04
0.49	0.36	0.48	0.45	1.00	1.08
0.09	0.05	0.07	0.08	0.17	0.24
1.23	1.50	1.23	1.43	1.35	2.02
0.07	0.07	0.14	0.13	0.12	0.10
1.21	1.01	0.53	0.51	0.45	0.50
0.25	0.38	0.13	0.11	0.13	0.11
0.27	0.14	0.30	0.15	0.55	0.31
0.47	0.53	0.28	0.32	0.23	0.24
6.24	6.15	5.26	5.24	6.17	6.32
0.01	0.02	0.03	0.01	0.03	0.04
24.00	24.00	24.00	24.00	24.00	24.00
1225	339255 420	2308	816187 1012	1547	534259 664

6. Use of time by 10–64-year olds (26 categories) by age in 1979 and 1987, females

		Hrs/min per day			
		Total		Age	
				10–14	
		1979	1987	1979	1987
01	Gainful employment	2.33	3.02	0.03	0.02
02	Travels to job	0.14	0.15	0.00	0.00
01–02	Gainful employment, total	3.07	3.17	0.03	0.03
03	Household work	2.18	2.02	0.26	0.22
04	Maintenance	0.10	0.09	0.04	0.03
05	Other housework	0.10	0.11	0.06	0.07
06	Child care	0.24	0.28	0.03	0.07
07	Shopping and errands	0.25	0.26	0.11	0.12
08	Travels related to domestic work	0.12	0.19	0.05	0.08
03–08	Domestic work, total	3.39	3.35	0.55	1.00
09	Sleep	8.30	8.24	9.36	9.29
10	Meals	1.16	1.09	1.12	1.05
11	Personal hygiene	0.47	0.48	0.41	0.43
09–11	Physical needs, total	10.33	10.21	11.29	11.17
12	Studying	1.06	0.58	4.19	4.27
13	Travels to and from school	0.08	0.06	0.27	0.26
14	Leisure-time studies	0.06	0.05	0.03	0.08
12–14	Education, total	1.20	1.10	4.49	5.01
15	Participative activity	0.07	0.07	0.11	0.06
16	Sport and outdoor recreation	0.23	0.24	0.44	0.44
17	Entertainment and culture	0.05	0.05	0.08	0.10
18	Reading	0.45	0.48	0.54	0.47
19	Listening to radio	0.06	0.08	0.04	0.03
20	Watching television	1.10	1.31	1.27	1.39
21	Socializing with family	0.13	0.13	0.14	0.12
22	Socializing with acquaintances	1.01	1.04	1.14	1.08
23	Hobbies	0.36	0.30	1.02	1.04
24	Other free-time activity	0.29	0.14	0.18	0.11
25	Travels related to free time	0.25	0.30	0.27	0.34
15–25	Free time, total	5.19	5.35	6.42	6.38
26	Unspecified time use	0.02	0.03	0.02	0.01
01–26	Total	24.00	24.00	24.00	24.00
Population		1824800	1822324		154084
Diary days		6250	2369	698	263

15-24		25-44		45-64	
1979	1987	1979	1987	1979	1987
1.53	1.54	3.57	4.04	3.05	3.10
0.11	0.10	0.20	0.21	0.13	0.14
2.04	2.04	4.17	4.25	3.17	3.24
1.08	1.00	2.36	2.17	3.21	2.50
0.05	0.06	0.10	0.09	0.16	0.14
0.09	0.08	0.10	0.09	0.13	0.15
0.18	0.22	0.48	0.54	0.03	0.02
0.18	0.24	0.28	0.28	0.29	0.29
0.09	0.17	0.15	0.22	0.11	0.18
2.08	2.18	4.28	4.19	4.34	4.08
8.42	8.44	8.17	8.10	8.15	8.12
1.10	1.04	1.16	1.07	1.23	1.16
0.50	0.51	0.46	0.47	0.48	0.50
10.43	10.39	10.19	10.04	10.25	10.18
3.00	2.41	0.07	0.08	0.02	0.01
0.21	0.18	0.01	0.01	0.00	0.00
0.07	0.06	0.06	0.05	0.05	0.04
3.28	3.05	0.14	0.14	0.07	0.05
0.08	0.05	0.06	0.07	0.07	0.07
0.21	0.21	0.19	0.20	0.24	0.27
0.06	0.07	0.06	0.04	0.02	0.04
0.44	0.39	0.40	0.43	0.50	1.01
0.06	0.05	0.03	0.04	0.11	0.18
1.07	1.30	1.04	1.23	1.15	1.40
0.10	0.10	0.16	0.17	0.09	0.09
1.17	1.21	0.53	0.57	0.55	1.00
0.39	0.36	0.26	0.20	0.38	0.30
0.21	0.12	0.24	0.12	0.45	0.20
0.37	0.45	0.23	0.26	0.17	0.25
5.36	5.51	4.40	4.56	5.34	6.02
0.02	0.02	0.02	0.03	0.03	0.02
24.00	24.00	24.00	24.00	24.00	24.00
1332	366858 459	2400	768123 978	1798	533259 669

7. Use of time by 10-64-year olds (26 categories) by family cycle in 1979 and 1987, males

		Hrs/min per day					
		Family cycle					
		Unmarried living at home with parents		Other unmarried with no children		Single provider	
		1979	1987	1979	1987	1979	1987
01	Gainful employment	1.51	2.04	3.40	3.51	..	..
02	Travels to job	0.08	0.10	0.17	0.18	..	..
01-02	Gainful employment, total	1.59	2.14	3.56	4.08	..	..
03	Household work	0.17	0.17	0.59	0.53	..	..
04	Maintenance	0.17	0.17	0.18	0.14	..	..
05	Other housework	0.07	0.10	0.10	0.09	..	..
06	Child care	0.00	0.01	0.00	0.00	..	..
07	Shopping and errands	0.12	0.12	0.19	0.23	..	..
08	Travels related to domestic work	0.06	0.12	0.08	0.14	..	..
03-08	Domestic work, total	0.59	1.09	1.56	1.53	..	..
09	Sleep	9.12	9.05	8.29	8.20	..	..
10	Meals	1.15	1.09	1.26	1.16	..	..
11	Personal hygiene	0.35	0.41	0.41	0.49	..	..
09-11	Physical needs, total	11.02	10.55	10.35	10.26	..	..
12	Studying	2.56	2.39	0.58	0.37	..	..
13	Travels to and from school	0.18	0.18	0.04	0.03	..	..
14	Leisure-time studies	0.03	0.02	0.07	0.07	..	..
12-14	Education, total	3.17	2.59	1.09	0.47	..	..
15	Participative activity	0.08	0.03	0.08	0.06	..	..
16	Sport and outdoor recreation	0.54	0.54	0.39	0.44	..	..
17	Entertainment and culture	0.10	0.07	0.09	0.05	..	..
18	Reading	0.51	0.42	0.59	0.51	..	..
19	Listening to radio	0.09	0.07	0.23	0.23	..	..
20	Watching television	1.28	1.58	1.12	1.38	..	..
21	Socializing with family	0.07	0.06	0.02	0.01	..	..
22	Socializing with acquaintances	1.17	0.58	1.09	1.15	..	..
23	Hobbies	0.30	0.45	0.16	0.23	..	..
24	Other free-time activity	0.27	0.17	0.49	0.24	..	..
25	Travels related to free time	0.39	0.44	0.34	0.54	..	..
15-25	Free time, total	6.41	6.41	6.20	6.43	..	..
26	Unspecified time use	0.02	0.02	0.04	0.02	..	..
01-26	Total	24.00	24.00	24.00	24.00	24.00	24.00
Population		514900	489900	155100	202700	633300	9900
Diary days		1895	700	523	255	22	12

Married or living in common-law marriage with no children		Married or living in common-law marriage with children							
		Total		1 child		2 children		3+ children	
1979	1987	1979	1987	1979	1987	1979	1987	1979	1987
4.17	4.19	5.38	5.47	5.19	5.27	5.56	6.00	5.46	6.02
0.19	0.20	0.25	0.27	0.25	0.28	0.26	0.28	0.24	0.24
4.37	4.39	6.03	6.14	5.44	5.55	6.23	6.27	6.10	6.26
0.43	0.41	0.36	0.37	0.38	0.35	0.33	0.40	0.38	0.35
0.33	0.34	0.34	0.34	0.30	0.35	0.31	0.31	0.49	0.45
0.14	0.16	0.13	0.09	0.12	0.08	0.14	0.09	0.11	0.15
0.00	0.01	0.20	0.25	0.20	0.21	0.21	0.28	0.15	0.22
0.24	0.23	0.21	0.23	0.24	0.24	0.18	0.21	0.19	0.26
0.13	0.20	0.15	0.21	0.16	0.22	0.14	0.20	0.14	0.22
2.08	2.15	2.18	2.30	2.21	2.26	2.11	2.29	2.26	2.45
8.22	8.14	8.05	8.02	8.10	8.05	8.02	7.57	7.60	8.06
1.31	1.22	1.25	1.18	1.24	1.12	1.24	1.23	1.26	1.19
0.46	0.47	0.42	0.44	0.42	0.42	0.42	0.45	0.40	0.43
10.39	10.23	10.12	10.03	10.17	9.59	10.08	10.05	10.06	10.08
0.11	0.12	0.04	0.05	0.07	0.09	0.03	0.04	0.00	-
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
0.04	0.03	0.05	0.06	0.05	0.10	0.04	0.02	0.06	0.04
0.16	0.16	0.10	0.11	0.12	0.19	0.08	0.07	0.06	0.04
0.08	0.06	0.12	0.11	0.10	0.10	0.11	0.12	0.23	0.10
0.43	0.39	0.32	0.27	0.32	0.26	0.33	0.29	0.33	0.23
0.05	0.05	0.05	0.06	0.04	0.06	0.06	0.06	0.05	0.06
0.59	1.03	0.46	0.44	0.50	0.49	0.42	0.42	0.44	0.37
0.14	0.18	0.05	0.07	0.07	0.09	0.04	0.05	0.05	0.04
1.39	2.04	1.24	1.39	1.26	1.46	1.25	1.42	1.14	1.09
0.12	0.10	0.18	0.18	0.18	0.17	0.18	0.20	0.18	0.14
0.52	0.51	0.45	0.42	0.48	0.45	0.42	0.33	0.45	1.00
0.12	0.11	0.13	0.08	0.12	0.07	0.15	0.07	0.11	0.14
0.46	0.26	0.30	0.15	0.33	0.17	0.27	0.14	0.31	0.12
0.27	0.30	0.25	0.24	0.25	0.26	0.25	0.20	0.22	0.27
6.17	6.23	5.15	5.00	5.24	5.19	5.07	4.50	5.10	4.36
0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.02	0.02	-
24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
372800	544500	632900	604100	288200	244200	245500	272700	99200	87200
1237	681	2130	747	963	307	829	336	338	104

3. Use of time by 10-64-year olds (26 categories) by family cycle in 1979 and 1987, females

		Hrs/min per day					
		Family cycle					
		Unmarried living at home with parents		Other unmarried with no children		Single provider	
		1979	1987	1979	1987	1979	1987
01	Gainful employment	1.03	0.47	3.15	3.17	4.34	4.02
02	Travels to job	0.07	0.04	0.17	0.16	0.23	0.23
01-02	Gainful employment, total	1.09	0.51	3.32	3.33	4.57	4.25
03	Household work	0.43	0.39	1.54	1.36	2.40	2.08
04	Maintenance	0.05	0.05	0.11	0.07	0.08	0.08
05	Other housework	0.07	0.06	0.14	0.15	0.06	0.11
06	Child care	0.02	0.04	0.01	0.01	0.31	0.45
07	Shopping and errands	0.14	0.18	0.31	0.28	0.26	0.34
08	Travels related to domestic work	0.07	0.12	0.11	0.17	0.13	0.24
03-08	Domestic work, total	1.18	1.25	3.00	2.44	4.04	4.09
09	Sleep	9.04	9.07	8.26	8.24	8.10	8.13
10	Meals	1.11	1.06	1.17	1.07	1.15	1.14
11	Personal hygiene	0.48	0.51	0.51	0.55	0.45	0.42
09-11	Physical needs, total	11.04	11.04	10.35	10.26	10.09	10.10
12	Studying	3.51	3.39	0.36	0.41	0.10	0.07
13	Travels to and from school	0.26	0.24	0.05	0.03	0.02	0.00
14	Leisure-time studies	0.06	0.08	0.06	0.06	0.08	0.02
12-14	Education, total	4.23	4.11	0.47	0.50	0.19	0.09
15	Participative activity	0.09	0.05	0.10	0.12	0.04	0.03
16	Sport and outdoor recreation	0.31	0.32	0.23	0.29	0.19	0.20
17	Entertainment and culture	0.07	0.09	0.07	0.04	0.05	0.04
18	Reading	0.50	0.48	0.55	1.02	0.43	0.37
19	Listening to radio	0.07	0.04	0.14	0.17	0.03	0.03
20	Watching television	1.15	1.39	1.07	1.29	1.04	1.42
21	Socializing with family	0.12	0.12	0.02	0.01	0.11	0.07
22	Socializing with acquaintances	1.13	1.14	1.21	1.22	0.48	1.02
23	Hobbies	0.49	0.53	0.38	0.36	0.28	0.23
24	Other free-time activity	0.21	0.12	0.38	0.16	0.29	0.09
25	Travels related to free time	0.31	0.39	0.30	0.38	0.16	0.23
15-25	Free time, total	6.04	6.28	6.04	6.26	4.29	4.54
26	Unspecified time use	0.02	0.01	0.03	0.00	0.02	0.12
01-26	Total	24.00	24.00	24.00	24.00	24.00	24.00
Population		444300	377200	272800	293800	73300	62700
Diary days		1624	541	904	373	242	82

Married or living in common-law marriage with no children		Married or living in common-law marriage with children							
		Total		1 child		2 children		3+ children	
1979	1987	1979	1987	1979	1987	1979	1987	1979	1987
3.26	3.38	3.28	3.42	3.49	3.56	3.11	3.44	3.09	3.10
0.15	0.19	0.16	0.17	0.20	0.19	0.14	0.17	0.13	0.13
3.42	3.57	3.44	3.59	4.10	4.15	3.24	4.01	3.22	3.23
2.56	2.35	3.08	2.38	2.57	2.22	3.12	2.36	3.27	3.15
0.15	0.15	0.11	0.09	0.11	0.08	0.10	0.08	0.15	0.10
0.13	0.12	0.11	0.10	0.10	0.12	0.11	0.09	0.11	0.06
0.01	0.00	1.02	1.23	0.52	1.04	1.09	1.28	1.14	1.49
0.27	0.28	0.27	0.28	0.26	0.26	0.28	0.30	0.28	0.28
0.11	0.18	0.16	0.24	0.14	0.22	0.17	0.26	0.19	0.26
4.03	3.49	5.15	5.11	4.50	4.34	5.28	5.17	5.53	6.15
8.17	8.15	8.17	8.06	8.20	8.06	8.15	8.07	8.10	8.02
1.20	1.12	1.17	1.08	1.18	1.04	1.16	1.11	1.20	1.07
0.51	0.49	0.42	0.44	0.42	0.46	0.42	0.44	0.43	0.38
10.27	10.16	10.16	9.57	10.20	9.56	10.13	10.03	10.12	9.47
0.16	0.17	0.03	0.04	0.04	0.01	0.03	0.09	0.04	-
0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.01	-
0.06	0.05	0.05	0.04	0.04	0.04	0.06	0.03	0.04	0.05
0.23	0.24	0.09	0.09	0.09	0.05	0.09	0.14	0.09	0.05
0.06	0.05	0.05	0.07	0.04	0.06	0.05	0.05	0.11	0.12
0.22	0.25	0.19	0.17	0.19	0.19	0.19	0.18	0.18	0.11
0.05	0.04	0.03	0.04	0.02	0.06	0.05	0.03	0.04	0.02
0.49	0.53	0.36	0.39	0.37	0.43	0.38	0.38	0.28	0.31
0.07	0.11	0.03	0.04	0.03	0.05	0.02	0.03	0.03	0.05
1.12	1.35	1.08	1.20	1.10	1.24	1.08	1.18	1.00	1.14
0.10	0.12	0.19	0.22	0.15	0.21	0.22	0.22	0.23	0.25
0.56	0.57	0.49	0.55	0.46	0.58	0.54	0.51	0.43	0.56
0.32	0.27	0.29	0.15	0.31	0.16	0.26	0.13	0.29	0.21
0.38	0.17	0.24	0.13	0.26	0.14	0.22	0.13	0.26	0.13
0.24	0.26	0.19	0.26	0.17	0.33	0.23	0.23	0.15	0.15
5.21	5.31	4.34	4.41	4.31	5.05	4.44	4.25	4.20	4.27
0.03	0.03	0.02	0.03	0.01	0.05	0.02	0.01	0.03	0.03
24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
388300	523300	646100	565400	285200	216300	261800	245800	99100	103200
1317	658	2163	715	957	273	868	314	338	128

9. Use of time by the employed (26 categories) according to socio-economic status in 1979 and 1987, males

	Hrs/min per day			
	Total		Socio-economic status	
	1979	1987	1979	1987
01 Gainful employment	5.51	6.01	7.16	7.00
02 Travels to job	0.26	0.29	0.04	0.09
01-02 Gainful employment, total	6.18	6.30	7.20	7.08
03 Household work	0.33	0.33	0.33	0.22
04 Maintenance	0.30	0.28	0.25	0.24
05 Other housework	0.12	0.10	0.11	0.08
06 Child care	0.10	0.12	0.03	0.04
07 Shopping and errands	0.19	0.20	0.20	0.20
08 Travels related to domestic work	0.12	0.18	0.11	0.19
03-08 Domestic work, total	1.56	2.00	1.42	1.36
09 Sleep	8.10	8.06	8.03	7.57
10 Meals	1.24	1.16	1.42	1.43
11 Personal hygiene	0.41	0.44	0.36	0.37
09-11 Physical needs, total	10.16	10.07	10.21	10.16
12 Studying	0.02	0.01	0.02	--
13 Travels to and from school	0.00	0.00	--	--
14 Leisure-time studies	0.04	0.03	0.05	0.00
12-14 Education, total	0.06	0.05	0.06	0.00
15 Participative activity	0.10	0.08	0.12	0.04
16 Sport and outdoor recreation	0.33	0.31	0.27	0.17
17 Entertainment and culture	0.06	0.05	0.02	0.00
18 Reading	0.47	0.46	0.43	0.46
19 Listening to radio	0.07	0.08	0.11	0.12
20 Watching television	1.23	1.42	1.12	1.30
21 Socializing with family	0.13	0.11	0.11	0.08
22 Socializing with acquaintances	0.52	0.49	0.38	1.00
23 Hobbies	0.12	0.11	0.05	0.07
24 Other free-time activity	0.31	0.14	0.32	0.23
25 Travels related to free time	0.28	0.31	0.15	0.26
15-25 Free time, total	5.22	5.17	4.28	4.52
26 Unspecified time use	0.03	0.02	0.03	0.07
01-26 Total	24.00	24.00	24.00	24.00
Population	1120000	1245300	118900	110500
Diary days	3760	1554	426	129

Other self-employed persons		Upper-level employees		Lower-level employees		Workers	
1979	1987	1979	1987	1979	1987	1979	1987
6.30	6.42	5.38	5.39	5.45	5.37	5.36	6.01
0.25	0.31	0.31	0.31	0.30	0.27	0.28	0.31
6.55	7.13	6.09	6.10	6.16	6.04	6.04	6.32
0.23	0.31	0.29	0.32	0.31	0.39	0.36	0.34
0.31	0.27	0.24	0.26	0.29	0.33	0.32	0.28
0.07	0.09	0.12	0.15	0.12	0.12	0.12	0.09
0.06	0.11	0.16	0.20	0.13	0.13	0.10	0.10
0.17	0.17	0.20	0.21	0.18	0.19	0.19	0.20
0.13	0.15	0.12	0.15	0.12	0.21	0.12	0.18
1.37	1.50	1.53	2.10	1.56	2.17	2.01	1.58
8.09	8.03	7.59	7.57	8.06	8.06	8.15	8.11
1.31	1.10	1.21	1.13	1.20	1.15	1.22	1.14
0.42	0.50	0.46	0.52	0.44	0.46	0.41	0.42
10.22	10.03	10.06	10.02	10.09	10.08	10.18	10.07
0.00	—	0.02	0.02	0.03	0.03	0.01	0.01
—	—	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.05	0.11	0.06	0.05	0.06	0.03	0.02
0.01	0.05	0.14	0.08	0.08	0.10	0.04	0.02
0.07	0.13	0.20	0.13	0.12	0.09	0.06	0.05
0.36	0.36	0.35	0.28	0.37	0.30	0.31	0.33
0.03	0.03	0.11	0.06	0.06	0.07	0.06	0.05
0.44	0.43	1.00	1.07	0.52	0.52	0.44	0.39
0.05	0.03	0.04	0.06	0.07	0.07	0.08	0.09
1.19	1.11	1.07	1.33	1.22	1.44	1.31	1.51
0.12	0.12	0.14	0.15	0.13	0.12	0.13	0.10
0.54	0.58	0.55	0.47	0.48	0.44	0.54	0.48
0.07	0.11	0.17	0.12	0.12	0.11	0.13	0.12
0.27	0.13	0.22	0.11	0.28	0.10	0.34	0.16
0.28	0.23	0.32	0.31	0.30	0.33	0.29	0.31
5.02	4.47	5.37	5.30	5.27	5.20	5.29	5.19
0.03	0.01	0.02	0.00	0.04	0.02	0.02	0.02
24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
66700	91600	133800	195700	216000	238300	582500	598400
221	117	432	256	725	306	1948	732

10. Use of time by the employed (26 categories) according to socio-economic status in 1979 and 1987, females

		Hrs/min per day			
		Total		Socio-economic status	
				Farmers on own account	
		1979	1987	1979	1987
01	Gainful employment	4.48	4.54	4.43	5.02
02	Travels to job	0.23	0.24	0.01	0.02
01-02	Gainful employment, total	5.11	5.18	4.44	5.04
03	Household work	2.23	2.03	3.58	3.28
04	Maintenance	0.10	0.08	0.15	0.12
05	Other housework	0.10	0.09	0.13	0.26
06	Child care	0.26	0.30	0.14	0.13
07	Shopping and errands	0.26	0.27	0.20	0.11
08	Travels related to domestic work	0.12	0.19	0.11	0.16
03-08	Domestic work, total	3.47	3.36	5.11	4.46
09	Sleep	8.15	8.08	7.53	7.47
10	Meals	1.13	1.06	1.28	1.18
11	Personal hygiene	0.47	0.48	0.41	0.48
09-11	Physical needs, total	10.15	10.02	10.02	9.53
12	Studying	0.02	0.03	0.00	—
13	Travels to and from school	0.00	0.00	0.01	—
14	Leisure-time studies	0.07	0.04	0.03	—
12-14	Education, total	0.09	0.07	0.04	—
15	Participative activity	0.06	0.06	0.08	0.10
16	Sport and outdoor recreation	0.18	0.20	0.08	0.15
17	Entertainment and culture	0.05	0.04	0.01	0.00
18	Reading	0.41	0.45	0.37	0.42
19	Listening to radio	0.04	0.07	0.08	0.12
20	Watching television	1.04	1.22	0.57	1.12
21	Socializing with family	0.12	0.13	0.10	0.06
22	Socializing with acquaintances	0.53	0.57	0.40	0.44
23	Hobbies	0.26	0.20	0.30	0.21
24	Other free-time activity	0.24	0.12	0.26	0.17
25	Travels related to free time	0.23	0.27	0.11	0.18
15-25	Free time, total	4.36	4.53	3.58	4.17
26	Unspecified time use	0.02	0.03	0.01	0.00
01-26	Total	24.00	24.00	24.00	24.00
Population		1069000	1106700	97200	75600
Diary days		3569	1407	343	91

Other self-employed persons		Upper-level employees		Lower-level employees		Workers	
1979	1987	1979	1987	1979	1987	1979	1987
4.33	5.20	5.13	5.15	4.48	4.35	4.44	5.13
0.14	0.09	0.31	0.30	0.27	0.26	0.24	0.28
4.47	5.30	5.43	5.46	5.15	5.00	5.08	5.41
2.17	2.08	1.49	1.41	2.06	1.54	2.27	2.08
0.08	0.08	0.09	0.08	0.10	0.08	0.09	0.08
0.12	0.08	0.13	0.12	0.09	0.07	0.09	0.07
0.27	0.46	0.33	0.34	0.32	0.34	0.21	0.19
0.34	0.30	0.24	0.30	0.26	0.28	0.27	0.28
0.13	0.26	0.12	0.18	0.14	0.19	0.11	0.19
3.52	4.06	3.20	3.22	3.37	3.31	3.43	3.29
8.17	8.05	7.58	7.53	8.16	8.21	8.22	7.56
1.14	1.09	1.15	1.07	1.11	1.05	1.12	1.03
0.47	0.47	0.51	0.49	0.50	0.49	0.44	0.46
10.18	10.02	10.04	9.49	10.17	10.15	10.18	9.46
0.03	0.03	0.07	0.01	0.02	0.04	0.01	0.02
0.00	—	0.00	—	0.00	0.00	0.00	0.00
0.16	0.02	0.11	0.06	0.08	0.06	0.05	0.02
0.20	0.05	0.18	0.08	0.10	0.10	0.06	0.04
0.06	0.04	0.08	0.06	0.06	0.07	0.06	0.06
0.20	0.13	0.18	0.19	0.18	0.21	0.20	0.23
0.04	0.02	0.08	0.02	0.06	0.06	0.03	0.02
0.43	0.36	0.52	0.53	0.42	0.48	0.39	0.39
0.03	0.02	0.03	0.06	0.03	0.06	0.05	0.08
1.10	1.17	0.41	1.01	1.06	1.24	1.08	1.31
0.12	0.13	0.17	0.20	0.13	0.14	0.10	0.11
0.49	0.53	0.57	1.06	0.55	0.55	0.53	0.58
0.25	0.11	0.16	0.20	0.24	0.22	0.30	0.19
0.27	0.12	0.22	0.10	0.20	0.10	0.23	0.16
0.22	0.25	0.34	0.32	0.25	0.28	0.21	0.23
4.43	4.08	4.37	4.55	4.38	5.01	4.43	4.55
0.01	0.09	0.00	0.01	0.02	0.03	0.03	0.04
24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
42100	72500	88700	141000	459800	542200	380700	273700
138	91	288	184	1513	693	1285	346

QUALITY DESCRIPTION

The sampling design used in the study

Data collection and processing

Standard errors

Standardisation of the population structure

THE SAMPLING DESIGN USED IN THE STUDY⁽¹⁾

The sampling design for the time use study uses a stratified sample. The sample is further divided into diary periods. The sample was made from the central register in December 1986. An additional sample consisting of about one thousand persons was made in July for the autumn study, and at the same time addresses of the actual sample were updated. The additional sample was added to the actual sample in such a way that the same number of persons was added to each period beginning in the autumn.

The sample was stratified according to region, sex and age. Regional stratification was made because certain municipalities financed the additional sample themselves. The regional additional sample in practice corresponds to the use of a denser sampling relation. The regional strata are: 1) the metropolitan area, 2) the outer metropolitan area, and 3) all other municipalities.

Stratification by sex and age was made in order to give additional accuracy to the sample and to minimise the sampling nonresponse effect. The base population was formed by all 10-64 year residents being part of the household population. The institutionalised population did not belong to the base population of the study. It was not possible, however, to spot every member of the institutionalised population in the register when making the sample. Part of the institutionalised population was removed in the data collection stage as undercoverage.

A two-class age stratification into 10-14 year olds and 15-64 year olds was used. Age and sex stratification divides each regional strata into four parts, making up a total of twelve strata.

The central population register was used as the sampling frame. The sampling method used was that of systematic equidistant sampling, which is comparable to a simple sample of each strata, when we take into account the additional sample. The sample data had been updated in the population register about one month before the sampling started. The same concerns the additional sample made in July 1987. Addresses and personal data were thus fresh, which means that there was little undercoverage, i.e. persons belonging to the base population but not to the sampling frame.

(1) This chapter was written by Paavo Väisänen.

The sample was divided into 366 sub-samples. Each sub-sample correspond to one time use diary period. The sub-sample is a miniature sample of the entire base. Before dividing the sample into sub-samples the original sample was sorted according to home municipality code, whereby the sub-sample was formed in the same way as the original sample. Each sub-sample was then allotted an ordinal number at random. The ordinal number corresponds to the diary period under study.

Formulas

Notation used

N = size of base population

N_h = strata size

n = sample size

n_h = sample size for strata h

y_{hi} = observation i in strata h

$$f_h = \frac{n_h}{N_h}$$

The total sum of variable y is estimated for strata using the expression

$$\hat{Y}_h = \frac{N_h}{n_h} \sum y_{hi}$$

The corresponding estimator for the total sum of the entire base population is

$$\hat{Y} = \sum_h \hat{Y}_h$$

Weight coefficient

When using ready-made programmes, it is practical to define a weight coefficient, which makes it easy to use the estimators mentioned above. Each strata is given its own weight coefficient, which is the stratum specific constant in the expression for the total sum, i.e. the coefficient k_h is defined as

$$k_n = \frac{M_h}{n_h}, h = 1, \dots, 12$$

In practice, part of the individuals in the sample refuse to participate in the study, part cannot be traced during the data collection period, part does not belong to the base population of the study, etc. For this reason the sample size (n_h) is replaced by the number of replies (v_h). This way the h sample is in a way weighted by the reply probability

$$\pi_{hi} = \frac{v_h}{n_h}$$

Estimation of the diary data

The time use diary data are estimated for each sub-sample with the help of the above formulas. As diaries were kept for two days, and as in some cases the person did not keep a diary for the other day, a daily weight coefficient is calculated with (n_h) in the formula being the number of persons having kept diaries on the day in question.

Estimation expressions

The following formulas are used for different estimators.

Let d stand for a dicotomic variable (d is 1 when the person belongs to the sub-population under study and 0 in all other case).

- 1) The time used for an activity on day p

$$A_p = \sum_h \sum_i \frac{M_h y_{hpi}}{n_{hp}}$$

- 2) Number of persons engaged in the activity on day p

$$C_p = \sum_h \sum_i \frac{M_h d_{hpi}}{n_{hp}}$$

- 3) The number of persons being studied

$$B = \sum_h \sum_i \frac{M_h d_{hi}}{m_h}$$

4) Time per week used for the activity

$$A = \sum A_p$$

5) Average time per day used for the activity

$$A/7$$

6) Time used per day and person on day p

$$A_p$$

7) Average time used per day per person during the week for the activity

$$\frac{A}{7B} = \frac{\sum A_p}{7B}$$

8) Average time used per participant for the activity on day p

$$A_p / C_p$$

9) Time used per participant per day for the activity

$$A/C$$

10) The average share of participants in an activity on day p

$$\frac{C_p}{B} 100\%$$

11) Average number of participants in an activity per day

$$\frac{\sum C_p}{7B} 100\%$$

DATA COLLECTION AND PROCESSING

Representativeness of the material

The data collection for the time use study was carried out in the period beginning on 1 April 1987 and 31 March 1988. Time use changes are studied on the basis of the material for the autumn of 1987, because the material for the 1979 study was collected in the period from September to November. The sample for October was increased by 1 000 persons, because the earlier study focussed on October.

The original sample size for September to November was 3 153 persons. Out of these, 3 089 belonged to the sample framework, and 2 406, or 77.9 per cent of the sample kept diaries. Net sampling nonresponse was thus 22.1 per cent, which was greater than in 1979 (17.6). The refusal rate grew from 13.8 per cent to 16.7 per cent. The number of non-traceable persons grew from 3.2 per cent to 4.3 per cent. Other causes for sampling mortality accounted for 1.1 per cent (0.6 in 1979).

Sampling nonresponse thus grew primarily as a consequence of the increase in the refusal rate. Reasons for refusal were said to be work (0.8 per cent), illness (0.5) and vacation (0.1). We may presume that the refusals do not differ from the answers with respect to their time use structure in any significant way, and that the refusal has been due to an individual attitude towards participating in studies in general.

The diary days were allotted to the persons by distributing the 366 days of the year of study between the persons in the sample. The additional sample for October was distributed evenly over 31 calendar days. Each day, an average of 21 persons started keeping diary, filling in their activities over two days.

Sampling nonresponse was a little higher for men (23.3 per cent) than for women (20.9). Young people had a more positive attitude toward the study than middle-aged.

Table 1. Sampling nonresponse by sex and age

Sex and age	Sample size	Sampling nonresponse persons	per cent
Both sexes	3 089	683	22,1
10 - 24	878	153	17,4
25 - 44	1 316	311	23,6
45 - 64	895	219	24,5
Men	1 579	368	23,3
10 - 24	449	86	19,2
25 - 44	686	175	25,5
45 - 64	444	107	24,1
Women	1 510	315	20,9
10 - 24	429	67	15,6
25 - 44	630	136	21,6
45 - 64	451	112	24,8

There are marked differences in reply willingness between the cities and the countryside. In the cities, the nonresponse was 25.1 per cent on the average, but only 16.0 in other municipalities. Sampling nonresponse was 35 per cent in the metropolitan area. The skewness caused by the nonresponse has been corrected with the use of weight coefficients.

Each person was allotted a starting day for the diary-keeping. If the interviewer did not trace the person before that date, the starting day could be postponed by no more than three weeks, provided the weekdays remained the same. Of those who replied, 78 per cent started keeping their diary on the date originally allotted. Almost all of those who replied (98 per cent) kept diaries for both days.

The diary method gives more reliable information on people's behaviour than traditional questionnaire or interview techniques. The propensities affecting understanding, memory or change do not cause the same errors in the results as interviews and questionnaires measuring generalised behaviour. The proximity of the study date lessens memory errors, and the centralised coding lessens errors pertaining to understanding. As the study measures all activities, the replier does not feel any need for changing the answers, the exception of course being salient activities, which are underestimated also by the diary method (regarding the method of measurement see further Niemi 1983 and 1985).

Data processing

The reply was returned by mail to the interviewer, who made a preliminary control and phoned to check up if the answers were unclear. The actual control and coding was made centrally at the Central Statistical Office. The coding of diary entries was made using five-letter abbreviations of words, which lessened any errors which might be caused by faulty memorisation of numeric codes. Code quality was controlled by the researcher, who compared the coding made by the coder to her own coding. Differences in interpretation occurred only in 3-4 per cent of all codings. The coding work has been done with due care. The 1979 study, on the other hand, has in retrospect been found to contain significantly more errors. One reason for the differences in the coding work quality is the use of letter codes. Another reason is the fact that the earlier study used temporary manpower (mainly students), while the present study recruited persons with earlier work experience at the Central Statistical Office. The period of employment was only a few months in the earlier study, as compared to one or one a half years in the later study.

Data was registered using the IDEAL-programme with some additional specifications programmed. The coding work was separated from the registration work, as the rhythm of the demanding coding work was found to be incompatible with the registration work. The registration work was made in the EDP-word processing unit at the Central Statistical Office.

STANDARD ERRORS

A study based on sampling is always connected with sampling errors. On the basis of a sample, only estimates of characteristics describing the base population can be made. The probability error caused by the sampling method can be studied by using the standard error. Using the standard error, there can be defined a range for the mean estimate, within which the mean of the base population is situated with a certain probability. This range is called the confidence interval. Table 1 lists estimates of time used for different activities in 1979 and 1987, and their standard error estimates.

To take an example, the 95 per cent confidence interval for the time used for television watching in 1987 can be calculated by multiplying the standard error (1.3 minutes, as listed in table 1), by a factor of 1.96. The resulting product is then subtracted from the mean value, which is 101.0. This yields the lower limit of the confidence interval, 98.5 minutes. By adding the product to the mean value we get the upper limit of the confidence interval, 103.5 minutes. The mean value of time used for television watching will thus with a probability of 95 per cent lie somewhere between 98.5 and 103.5 minutes. In other words, 95 per cent of the samples have mean values within this range.

With the help of confidence intervals it is also possible to estimate whether the differences between the mean values of 1979 and 1987 are a result of real changes in the base population or of random errors resulting from the sampling. If we compare the confidence intervals for time spent on watching television in 1979 (77.0 to 79.8 minutes) and 1987 (98.5 to 103.5 minutes), we find that the ranges do not overlap. We may thus say with 95 per cent confidence that the time used for watching television has increased in the base population.

Table 1. Estimates of mean values and standard errors for time used for different activities (26 categories) in 1979 and 1987. Minutes per day

Activity	1979		1987	
	Mean value	Standard error	Mean value	Stand. error
Gainful employment	205,0	2,2	215,5	3,6
Travel between home and job	15,8	0,3	17,4	0,4
Gainful employment, total	220,8	2,3	232,9	3,9
Household work	88,1	1,0	78,0	1,4
Maintenance	18,3	0,5	18,4	0,8
Other housework	10,7	0,4	11,1	0,6
Child care	16,2	0,5	18,4	0,9
Shopping and errands	21,8	0,3	23,2	0,6
Travel related to domestic work	11,4	0,2	18,3	0,4
Domestic work, total	166,5	1,5	167,4	2,3
Sleep	510,5	0,9	504,1	1,4
Meals	79,6	0,4	72,7	0,5
Personal hygiene	43,8	0,4	46,5	0,6
Physical needs, total	633,9	1,0	623,3	1,6
School attendance and studying	64,9	1,4	54,8	2,0
Travels to and from school	7,1	0,2	5,9	0,3
Free-time studies	5,0	0,3	4,6	0,4
Education, total	77,0	1,5	65,3	2,3
Participative activity	8,3	0,4	6,8	0,5
Sport and outdoor recreation	32,2	0,6	31,9	0,9
Entertainment and culture	5,9	0,3	5,5	0,4
Reading	48,2	0,5	49,1	0,8
Listening to radio	8,0	0,2	10,0	0,5
Watching television	78,4	0,7	101,0	1,3
Socialising with family	12,1	0,3	11,9	0,4
Socialising with acquaintances	59,8	0,8	58,2	1,2
Hobbies	27,4	0,5	25,2	0,8
Other free-time activity	31,6	0,5	17,0	0,6
Travel related to free time	27,4	0,5	32,2	1,0
Free time, total	339,4	1,7	348,6	2,7
Unspecified time use	2,5	0,2	2,5	0,4
Days studied	12 057		4 764	

STANDARDIZATION OF THE POPULATION STRUCTURE⁽¹⁾

Changes in time use are compared using two cross-section populations. The comparative results of both studies are sampled from the 10-64 year old population. The population structure of the base population has changed with regard to age, work attendance, family structure, number of children etc. A straight comparison of the two studies do not give any information on which time use changes are the effects of population structure change on time use, and which ones are the effects of real changes in people's behaviour.

The comparison can of course be made by calculating mean values and other characteristics for different population groups for the 1979 and 1987 material, and comparing these results. The results yielded by such comparisons, when made on the basis of high-quality materials, are in principle quite correct.

Such so called direct calculations may, however, lead us astray, if we do not take into account the main independent variables. Erroneous interpretations will be the result if we e.g. measure the time used for child care, keeping the person's sex and number of children equal, but forgetting to examine whether the person is gainfully employed or not.

Straight calculation presupposes that all variables which are of main importance for the phenomenon under study are kept equal. Unless e.g. work attendance is kept equal, the growth in work attendance of mothers with small children or longer parental leave will mislead us in interpreting the results. These factors are referred to by the common name of structural factors.

Change in structural factors give misleading information about changes in people's behaviour, if they are not kept standardised. E.g. the time used for child care may be the result of a growth in the number of children in the period between two studies. After removing this effect through the standardisation of the population structure, we can examine if the time used for child care is a result of the changes in the parents' possibilities for child care such as longer parental leave and more frequent use of the child care leave or more part-time work etc. Only after we have eliminated the effects of these structural factors can we judge from the growth in time used for child care that the behaviour of parents really has changed.

(1) This chapter was written by Seppo Laaksonen.

The changes in time use can be studied on different levels of accuracy. For this analysis the material has been grouped into the following categories:

- gainful employment
- domestic work
- personal needs
- education
- watching television
- other free time.

In looking for structural factors we have specifically kept these time use categories in mind when comparing, on the one hand, the results of 1979 and 1987, and on the other hand, the results for men and women. Even under these premises it has not been easy to find the "right" structural factors. On the one hand, the study does not aim at finding all possible structural factors, which in the end would explain the differences so well as not to leave anything but randomised differences.

The aim which was set was to minimise as much as possible the changes due to changes in the population structure. On the other hand, we wanted to use the same method for the structural cleanup of each one of the time use categories, and not the method best suited for each category separately. This because we wanted the results to be comparable. This view will restrict the freedom of the structural cleanup as the same background variables do not necessarily explain every time use category equally well.

In looking for structural factors we mainly used the time used for gainful employment. This activity can be held as the starting point for all other activities. If much time is used for gainful employment, there remain fewer degrees of freedom for other activities. The total time available in a day is in any case restricted, and everyone necessarily use a certain amount of time for sleep.

In looking for population structural factors and applying them in the appropriate form, we used a general linear model, i.e. a regression model with the time use category expressed in minutes as dependent variable, or in other words the relational scale variable (generally the quantitative variable). The independent variables were either category scale variables or transformed into such (qualitative variables). The material contained inter alia the following possible independent variables:

- age in years
- position (wage or salary earner, own-account farmer, other self-employed person)

- type of day (at home or at work, on vacation, ill, absent for some other reason)
- primary activity (gainfully employed, unemployed, student, disabled, on other form of pension, home maker, other)
- socio-economic status (own-account farmer, other self-employed person, disabled, upper-level employee, lower-level employee, worker)
- family cycle (unmarried living with parents, other unmarried without children, married or living in common-law marriage without children, married or living in common-law marriage with children, single provider)
- number of children
- age of youngest child
- province, type of municipality, greater region

Regression models of the same type have been used in time use studies by inter alia Robinson (1985) and Gershuny (1988). The model has been used in many other fields as well. For example Karisto used this model in his study concerning health (1984). The applications of this model are called multiple classification analysis. The application of the model for purposes of standardisation is technically fairly easy, but not unchallenged, as can be seen from e.g. Ekholm's critique (1986) of Karisto's way of applying the model.

The main problem in standardisation is of course the choice of the standardisation variables, where especially the following aspects are of importance:

(i) The number of independent variables cannot be very great.

(ii) The coefficient of determination and the explanatory power of each specific independent variable may be used to find the best independent variables.

(iii) The independent variables may be reclassified and new overall solutions can be sought, which best serve the overall needs of the model.

(iv) A comprehensive classification of structural factors may lead to situations where observations cannot be found for every class of every group to be compared. In such cases the structural change, where temporal comparisons are in question, would have been so strong as to preclude the existence of any corresponding population group at the other point of time (at least in the sample). In such cases standardisation does not function well and should not be allowed, nor should situations where differences are very big be allowed. The situation can be corrected by joining

classes, but at the same time significant information may be lost. This is a good example of a situation where standardisation is not a good solution. The changes in circumstances should better be described in other ways than using only bare standardised characteristics.

(v) If there are significant interrelations between the independent variables, the information cannot be ignored. In this case there are several possibilities, one of them being to build new independent variables either directly on the interrelationship factors or by making appropriate use of them.

In the present application the models were built primarily on the time used for gainful employment, separately for either sex. Models were, however, always calculated for the other time use forms studied: if the results were especially bad on their part, the group of independent variables in question would not have been accepted as a general solution. The best model was found to be a model with two independent variables:

1) Family cycle, which was formed on the basis of age and the original family cycle classification, as there was a clear connection between these two. Age was classified into three groups: under 25, 25 - 54 year olds, and 55 - 64 year olds. Other classifications were also tried; a classification using 20 years as the upper limit of the youngest group would have yielded an only slightly worse result. The original family cycle classification was reduced to three classes, taking into account only marriage or no marriage and children or no children. Children's ages were not included in the classification, although it was found to have special relevance for the results for women, especially in modelling time used for child care.(1)

2) Socio-economic status, which was divided into five sub-groups: self-employed person, employee, worker, student, and other. The three first-mentioned groups differed especially much from the two last-mentioned groups. The self-employed persons group and the employee group did not have to be divided into two, though it would have been possible to do so on the basis of the material. Neither did employees and workers differ very significantly from each other, and a joining of these two groups would not have given very much worse results.

(1) This is based on a model where the group of children of parents who were married or lived in common-law marriage had been divided into two groups; a) youngest child under 7 years of age, and b) youngest child between 7 and 17 years of age.

The coefficient of determination of different activities were:

- gainful employment 38 % (men) and 38 % (women)
- domestic work 12 % and 33 %
- child care 14 % and 25 %
- personal needs 7 % and 6 %
- education 60 % and 60 %
- television watching 3 % and 2 %
- other free-time activities 11 % and 11 %.

The coefficients can be seen to vary considerably. They cannot be said to be very high. In all cases the coefficients of determination would have increased quite considerably (10 - 20 per cent) if the day of the week would have been taken as an independent variable. This is due to the fact that time use on Saturday and Sunday differs from that on other days of the week for a great part of the population. This variable was not accepted, however, as it really does not make any distinction between the groups to be compared. This is due to the fact that the day of diary keeping in principle is random; only some slight differences due to nonresponse caused differences in the standardisation results. The inclusion of the day of the week would on the other hand have decreased the degrees of freedom of the study, and in some cases would have lowered the reliability. An increase in the degrees of freedom was not deemed to be an end in itself, if the standardisation result did not improve.

The explanation of time used for education works best. The reason for this is of course the socio-economic status classification where "students" make up their own group. There is an interesting difference between sexes with regard to the explanatory degree of domestic work and child care. The classification used differentiates very well the women doing domestic work and child care, but much less so the men doing the corresponding activities.

The following comparative results using different models for 1987 will serve to clarify the effect of standardisation. The example concerns the differences in time used for gainful employment by the three age groups referred to above (the age groups will here be referred to as "young", "middle-aged" and "old"):

- If time use is calculated without standardisation, the middle-aged use 192 minutes more than the old and 230 minutes more than the young.
- If socio-economic status is used as standardisation variable, the difference between the middle-aged and the old is only 52 minutes and that between the middle-aged and the young even less, or 17 minutes. These changes are, e.g. in

the case of the young, due to the fact that they for the most part are students, who do relatively less gainful employment, which is seen in the unstandardised numbers as a low amount of gainful employment. In the standardised numbers, however, the time used for gainful employment is compared separately within each socio-economic group, and they are then added in a "weighted" fashion. The differences diminish as the young who are gainfully employed do almost as much work as the middle-aged.

Standardisation over family cycle led to a much lesser decrease in differences: the amount of time used for gainful employment by the middle-aged was 200 minutes greater than for the old and 160 minutes greater than for the young. In this case the young would seem to be doing more work than the old.

- If both family cycle and socio-economic status are taken into the model, and if the co-influence between age group and family cycle is disregarded, the young would seem to do even one minute more work than the middle-aged, who would be doing 56 minutes more than the old. This result differs from that of a model where age group and family cycle are present through their co-influence factor: it turns out that the middle-aged do about 11 minutes more work than the young and 54 minutes more than the old.

This comparison between different models show that there are great differences, and that the standardisation is significantly influenced by the combination of standardisation variables. In the case referred to, socio-economic status clearly had the greatest effect on time used for gainful employment, but age group and family cycle also had a marked influence. In comparing the differences between the 1979 and 1987 studies, it is important to take into account the change in population structure that has taken place in the meantime. This was done by taking as the starting point of the analysis the model structure which had proven best suited to the 1987 material. To that model we then added a variable expressing the year of study.(1) The

(1) As both materials were samples of the 10-64 year old Finnish population of the year in question, the materials had to be updated by using so called sampling weights. As weights for the combined material are used the original weights, i.e. the sum of the sampling weights for the 1979 material was used as the estimate for the 1979 population and correspondingly for 1987. During this period of time the population had grown somewhat, from which we can see that the weight of the 1987 material is a little greater in the

amounts of time use given by the models for both years, i.e., the standardised time use amounts, thus give an average in the situation where the socio-economic status and family cycle are the same for both years. The results are thus not influenced by the changes which have taken place in them at the level at which the variables are defined, i.e., in $7 \times 5 = 35$ cells.

A comparison of standardised and unstandardised results opens up many interesting views on the development over the period under study. For example, the time used by women for gainful employment (see Table 2) has increased by 10 minutes or 5 per cent when viewed "straight", i.e., unstandardised. Though this is true, it is nevertheless not due to women using more time for gainful employment, but to the fact that women nowadays participate relatively more in gainful employment than in 1979. The standardised number even points to a decline, though not a significant one. The time used by men for gainful employment on the other hand shows a slight increase counting both ways, though the increase is somewhat smaller in standardised terms.

The time used for domestic work has increased for men but decreased by women to the same extent. Standardisation does not have any significant effect on this result.

Men have not participated to any greater extent in child care, nor is their participation significant as of yet, though it does show a marked increase of 29 per cent in standardised numbers. Women still use three times the amount of time for child care, and the amount has even increased by 39 per cent. One reason for this is the longer maternity leave.

Standardisation has a great effect on time used for education. In unstandardised terms it has declined significantly, or 18 % for men and 13 % for women. In standardised terms the decline is reduced to 6 % and 11 %, respectively, only the latter number being significant. The differences between standardised and unstandardised numbers to a large extent depend on the fact that the age group representing the typical student population makes up a smaller share of the whole population than before. Still the time used for education seems to have decreased. The reason for this seems to be that more and more students are doing paid work during terms, or spending more of their time on other activities such as e.g. watching television.

calculation of the total result.

Table 1. Time used for gainful employment as standardised with the help of regression model, using the combined 1979 and 1987 material. Minutes per day(1)

Year	Men		Women	
	Unstan- dardised	Stan- dardised	Unstan- dardised	Stan- dardi- dard.
1979	258	260	187	193
1987	269	266	197	191
Difference	+11	+6	+10	-2
p-value		0.1939		0.6620
Family cycle				
Unmarried 10-24 yrs	100	260	69	197
Unmarried 25-54 yrs	293	241	285	212
Unmarried 55-65 yrs	137	198	127	182
Married or living in common-law marriage 10-24 yrs, no children	278	253	244	234
Married or living in common-law marriage 25-54 yrs, no children	350	278	282	214
Married or living in common-law marriage 55-64 yrs, no children	181	238	140	189
Married or living in common-law marriage, children	368	278	236	175
Socio-economic status				
Self-employed person	427	427	298	301
Emloyee	367	362	312	312
Worker	373	369	316	317
Student	17	20	12	5
Other	29	44	8	13
R ² (coefficient of determination)		0.380		0.381

(1) Unstandardised numbers are "straight" averages of different classes of the variables. The standardised numbers for 1979 and 1987 are averages keeping family cycle and socio-economic status the same for both years. The p-value reports the level of significance at which the difference between the averages is other than nil.

Table 2. Time used by men and women in 1979 and 1987, unstandardised and standardised for family and socio-economic structure. Minutes per day(1)

	Men		Women	
	Unstan- dardised	Stan- dardised	Unstan- dardised	Stan- dardised
Gainful employment				
1979	258	260	187	193
1987	269	266	197	191
Difference	+11	+6	+10	-2
(p-value)		(0.1939)		(0.6620)
Domestic work				
1979	101	102	194	192
1987	111	109	184	185
Difference	+10	+7	-10	-7
(p-value)		(0.0081)		(0.0058)
Child care				
1979	9	8	26	24
1987	10	10	31	33
Difference	+1	+2	+5	+9
(p-value)		(0.0004)		(0.0001)
Personal needs				
1979	635	635	633	632
1987	625	625	621	622
Difference	-10	-10	-11	-10
(p-value)		(0.0001)		(0.0001)

(1) Standardisation has been made for each class of activity using the same regression model as in Table 1, In this table, however, only the numbers concerning the variable "year" are shown. The p-value reports the level of significance at which the difference between the averages is other than nil.

	Men		Women	
	Unstan- dardised	Stan- dardised	Unstan- dardised	Stan- dardised
Education				
1979	70	65	74	73
1987	57	61	64	65
Difference	-13	-4	-9	-8
(p-value)		(0.0825)		(0.0002)
Watching television				
1979	87	88	70	69
1987	111	111	91	91
Difference	+24	+23	+20	+22
(p-value)		(0.0001)		(0.0001)
Other free-time activities				
1979	280	281	257	256
1987	257	256	251	252
Difference	-24	-26	-6	-6
(p-value)		(0.0001)		(0.1822)

Standardised and unstandardised data may be compared also in classes of independent variables. According to Table 1 the differences between standardised and unstandardised numbers are quite small in the classes of the variable that we have chosen as primary independent variable, i.e. "socio-economic status", whereas the differences in the classes of family cycle in some cases are notable. For example, the time used for gainful employment by young unmarried men increases from 100 to 260 when socio-economic status and time of interview are standardised.

These are some of the highest numbers in the table. Only married middle-aged persons work more than young unmarried men. People spend the same amount of time on work regardless of children or not. Women's work time is reduced by the existence of children in standardised terms as well. In this stage of the family cycle women do as much as 37 per cent less paid work than men. The difference is at its smallest, or 8 per cent, for the unmarried old and for the young married couples without children. Of the socio-economic groups, self-employed men clearly use the most time for gainful employment of all groups, the differences to self-employed women being 30 per cent or clearly greater than for employees and workers.

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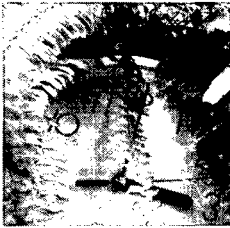
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Iiris Niemi – Hannu Pääkkönen



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