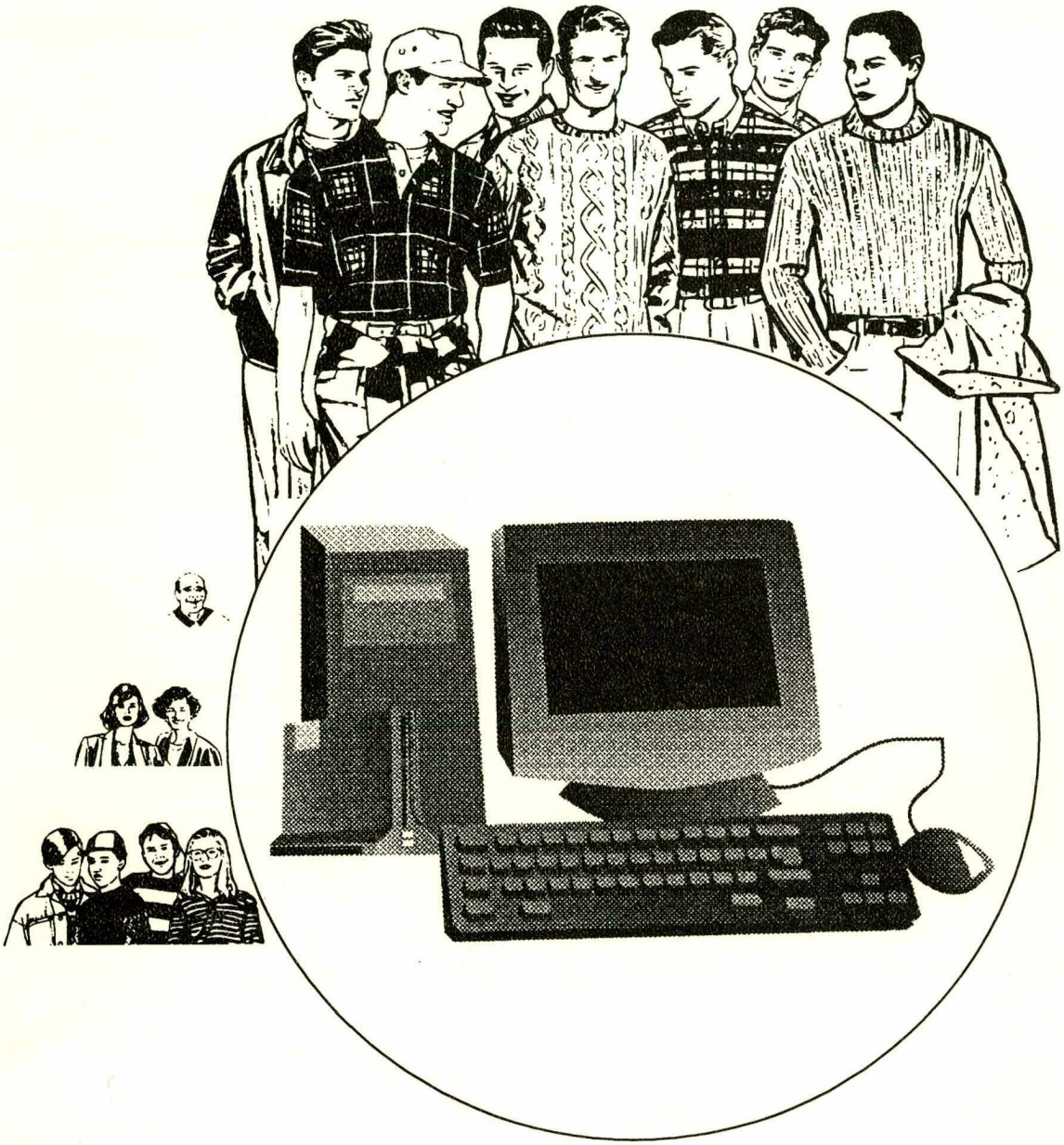
KATSAUKSIA

Juha Nurmela

Does Modern Information Technology Select Its Users?



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Does Modern Information Technology Select Its Users?

Report 2 of the project "The Finns and the Future Information Society"

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Foreword

The project "The Finns and the future information society" conducted an interview survey based on a statistically representative sample of the Finnish population to inquire into people's skills and capabilities for making use of modern information technology. The aim was to create a body of material accessible to the general public and to draw up basic reports on the capabilities of the citizens of this country as they step out into the information society.

This report is a continuation of that entitled "The Finns and modern information technology" published in June 1997 (Statistics Finland, Reviews 1997/7). It examines in more detail differences between population groups in the extent to which they make use of modern information and communications technology, providing up-to-date data on the growth in the resources possessed by households in this respect. The chapter on regional differences was written by senior statistician Vesa Virtanen. It is hoped that the results will promote discussion of the information society from the perspective of marginalisation in particular.

The collection and reporting of the data was financed by the Ministry of Education, Ministry of Transport, Ministry of Finance, Ministry of Internal Affairs, the Finnet Association, Telecom Finland, the Academy of Finland and the Association of Local Councils. The project steering group was chaired by Aarno Laihonen and Risto Lehtonen of Statistics Finland and its members comprised Ilpo Kokko of the Ministry of Education, Kristiina Pietikäinen of the Ministry of Transport, Antti Rainio of the Ministry of Finance /SITRA, Seppo Toivonen and Ulla Artte of the Finnet Association and Jukka Miiluvaara of Telecom Finland. The steering group provided excellent support for the project.

Analysis of the material is continuing, and the next report, concerned with modelling of the spread of modern information technology into households, will be published at the end of 1998. The material has also been made accessible to a number of researchers outside Statistics Finland, from whom results can be expected in 1998 and 1999.

Malcolm Hicks has translated this report in English.

Responsibility for the results and conclusions presented here lies with the author and not with Statistics Finland or with those who financed the project.

Helsinki, April 1998

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Contents

Abstract

This review discusses the types of people selected by new information and communications technology as its users. The main objectives are a) to describe the process by which individual households and persons become selected as users of new information and communications technology, b) to look at regional differences in the use of this technology and c) to examine the extent to which the information and communications technology resources of households increased between November 1996 and November 1997. The material comprised interviews conducted with 2 362 persons representing 1 082 households. The resources were examined separately for single-person and two-person households and families, and the respondents' experiences, skills and opinions were classified by age, sex and whether they were living in small households or families.

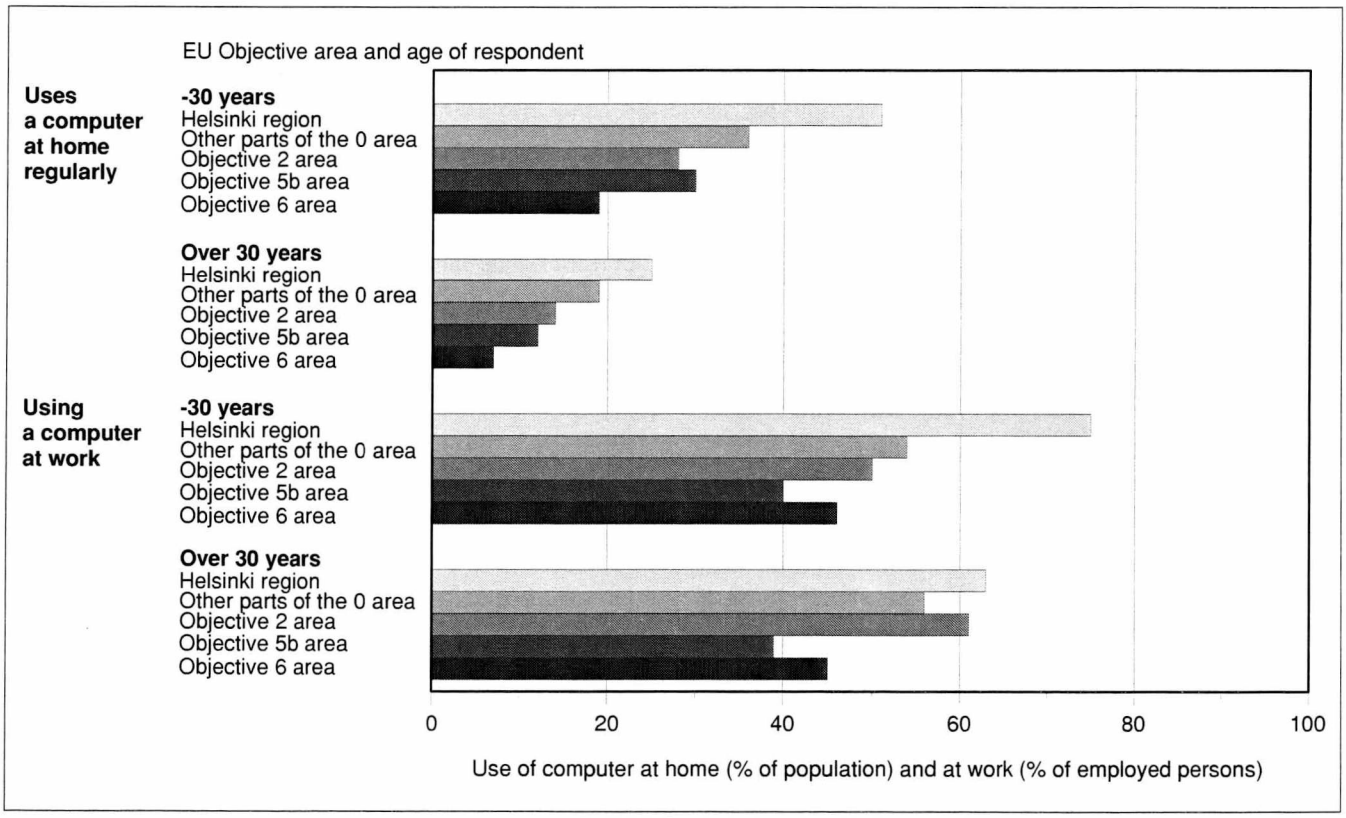
The number of mobile phones in households has increased extremely rapidly in the last two years, to the extent that as many as 63% of them had at least one mobile phone by November 1997. They were numerous in small, young households and families in particular.

The home computer has gained a solid foothold among young single men aged under 30 years, in two-person households aged under 30 years and in families with children of school or student age. As few as 5–10% of Finns have access to data networks from home, however. Network connections were used most actively by young men aged 20–30 years, not those aged under 20 years as is often believed. Women were more likely to use a computer at work than men, which greatly reduces the otherwise markedly uneven sex and age distribution in the use of home computers.

Education would not seem to have any appreciable impact on the spread of information technology equipment into homes. Income levels may play a role in this, but it is above all a matter of household preferences. Young people and families with children in particular seem to have had good grounds for purchasing computers even though their incomes may not be very great.

Regional differences proved to be significant, in that households located in centres had markedly better information and communications technology resources than those in remote areas. There were also regional differences in terms of jobs, in that those in the centres involved the use of computers as an integral part of the work far more often than did those in remote areas, so that sex and age differences in computer use are not balanced out there to the same extent as they are in the centres. More attention should thus be paid to regional differences (Fig. A).

Figure A. *Regular use of a computer at home and at work during the last 6 months, by age and EU Objective Area, in %.*



1. Introduction

1.1. Research setting

The purpose of the project "The Finns and the future information society" launched by Statistics Finland in summer 1996 was to provide up-to-date information on the use of information technology among the Finnish population. There is a keen demand for data of this type at the moment, as a number of projects have already been initiated or will be initiated soon for achieving a rapid transition to the information society in Finland and at least providing citizens with opportunities for acquiring information technology skills etc. The extensive volume of statistics entitled "On the road to the information society" published by Statistics Finland in 1997 was one of the first of its kind in the world.

The present report is the second paper to be published within the project "The Finns and the future information society", which involved interviews conducted with a total of 2362 persons, representing 1080 households, in November 1996. The questions covered the audiovisual equipment and communications and information technology resources possessed by the households, the use made of these and the respondents' experiences and attitudes regarding the information society. The questionnaire contained some 200 items on types of equipment and technology and the same number again on the use made of them and opinions regarding them. The number of questions put to a respondent depended on the types of equipment to which he or she had access at home, work or school.

The emergence of new issues, phenomena, products and services in society invariably requires discussion of questions connected with their adoption, applications and consequences from the point of view of the welfare society, including aspects such as justness, equality and accessibility. In this sense, modern information and communications technology is particularly interesting and important, for it allows many services which have up to now been produced by human agency and have involved person-to-person communication to be rationalised and 'automated'. Many of these have now become man-machine relations, and many more could be converted to such.

It is thus absolutely essential that one should examine the extent to which Finnish households are making use of modern information and communications technology and the experiences that they have gained of it. The purpose of the current report is to examine on the basis of the material whether the adoption and use of such technology involves any evident selection or marginalisation.

The first report, entitled "The Finns and modern information technology and its appendices, which provided an overall picture of modern information and communications technology resources in households, schools and places of work and of the use made of these, already contained obvious signs of marginalisation in terms of age and sex.

1.2 The research framework

Modern communications and information technology as a social question. The extent to which modern information technology is connected with choices made by households and the activities that they pursue is essentially communicated, at least for the time being, through knowledge, which may of course be based on facts or beliefs regarding the threats or opportunities involved, but at least partly on concrete facts. A factual assessment of this kind can be described using three elements which allow us to examine the consumption and purchase of modern information and communications technology equipment and related services by households or private persons. Fig. 1 below is based on that constructed by Eero Tanskanen to describe the dimensions affecting consumer behaviour (Tanskanen 1995).

The centre part of Fig. 1. represents households which either purchase or do not purchase modern information and communications technology equipment. They relate their purchase and utilisation decisions to other choices and purchases that they make through *cognitive management, meanings and operative situations.* The situation is invariably complex from the point of view of decisions and actions. The attitudes and beliefs may of course be highly positive but the information incorrect or insufficient, which will lead to action that is irrational from the point of view of the objectives set. Or else the cognitive management may be good but the operative situation of a kind which does not allow for actions to be taken in accordance with this information.

It may be taken as a rule rather than an exception in household-level decisions that the household members will differ in their levels of knowledge and the meanings that they assign, nor will the family's (financial) resources be divided equally among them (cf. Nurmela 1996, 56–76).

This is a question of a two-stage process. The utilisation of modern information and communications technology of course requires that one should first purchase it, have access to it at one's place of work, borrow it or

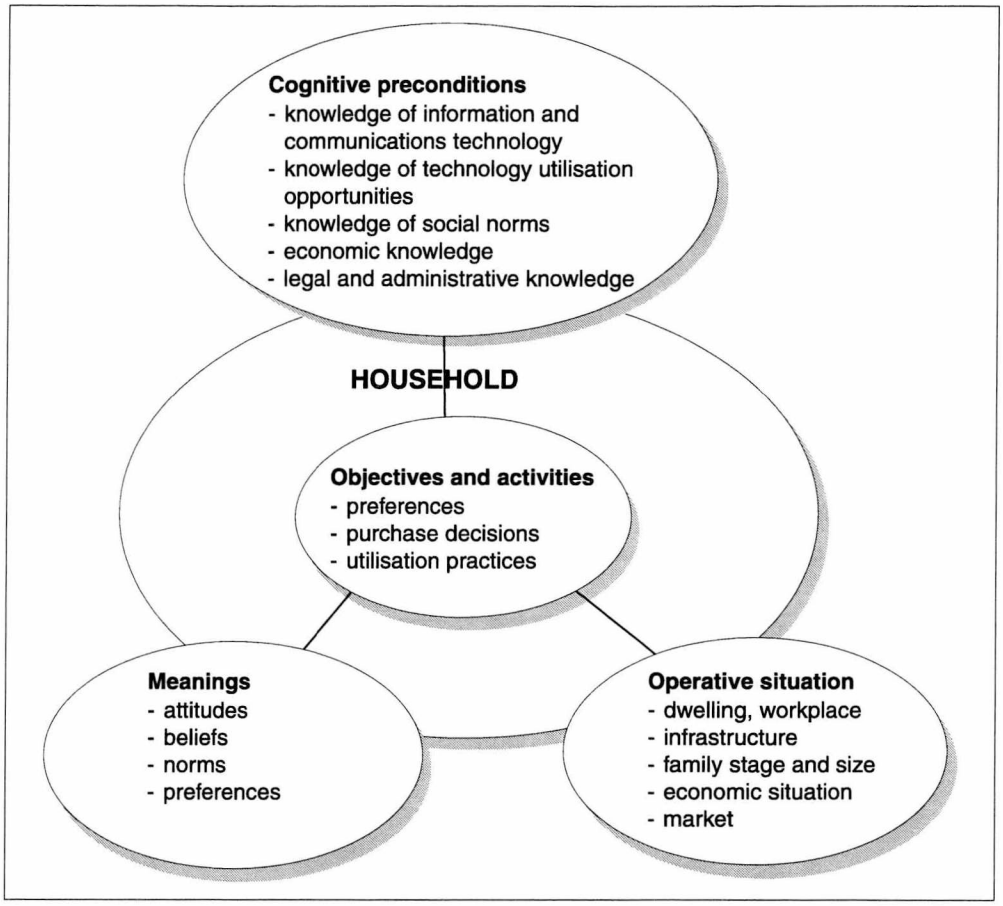


Figure 1. *Dimensions affecting the use of modern information and communications technology*

obtain it by some other means. These decisions are largely dependent on people's expectations, which can differ greatly. It may be possible in households of more than one person to find a leader of opinion or prime mover in different fields of consumption and decision-making. The traditional assumption is, for example, that the car represents a masculine sphere, as will the many other technical devices connected with living, while food and clothing are assumed to be feminine spheres, together with many other sectors of consumption. Modern information and communications technology can usually be assumed to fall within the 'showing-off' sphere dominated by the young people and men in the family. A perspective of this kind may be of importance if the aim is to influence or change households' behaviour, in which case one should pay attention to whose sphere the functions to be influenced fall into. The situation is particularly complex in the case of families with children.

The second step is actual use of the equipment or interface once the opportunity is there. If purchases as such are described using the concept of the *manner of acquisition*, the latter could be accounted for with the concept *manner of usage* (Nurmela 1996, 75). In the case of modern information and communications technology, this may mean complete non-usage at the one

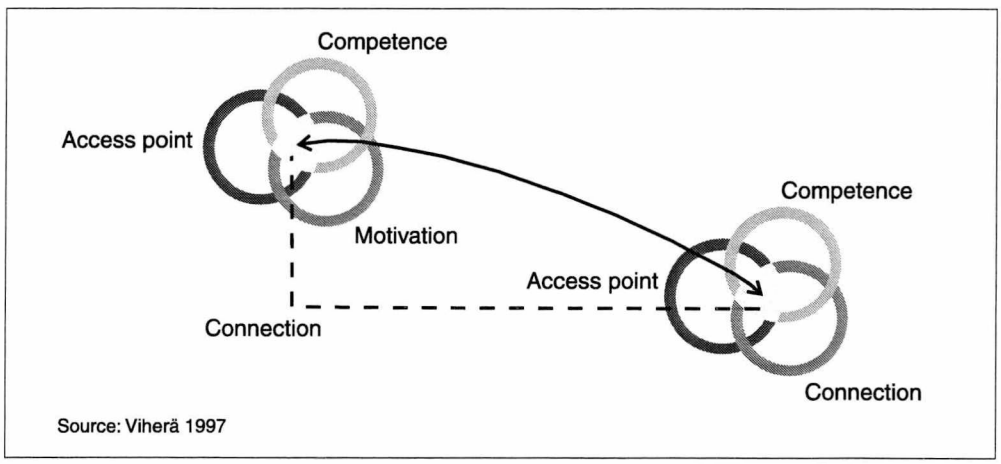


Figure 2. *Major situational factors affecting the use of modern information and communications technology*

extreme and a full command over the device and its 'soul' and its extensive use in personal life and for satisfying information needs. These manners of usage can be learned from other people, adopted from similar hobbies or transferred from the use of other information and (mass) communications media.

Nature of the usage situation and achievement. Viherä (1997) maintains that the usage situation involves three dimensions, which she terms *the access point, competence and motivation.* The access point denotes the user's hardware and its connection to the outside network, competence his expertise in the use of the access point and motivation his grounds or principles for connecting the access point. In order for contacts through the network to be motivated, the persons, services or data etc. which one wishes to contact should have a sufficiently compatible access point which ensures smooth communication (the point in Fig. 2 where the circles intersect). Use of this access point is triggered off by motivation. Selection and marginalisation can be analysed further in terms of the concept of achievement.

It should be noted here that we are all individuals, subjects and autonomous beings, essentially deciding on our actions independently. How, then, can an outsider alter our aims, habits and routines? How can the preconditions for the purchase and use of modern communications and information technology and the obstacles to this be specified? An interesting resource-based interpretation is provided by Wiman (1988), who sets out from the means available for helping people. These are indicated in Table 1 by listing external problems first and then those connected with the character of the individual. The classification can be taken as a problem-oriented concretisation of the above diagrams.

Wiman thus sets our from the idea of achievement, emphasising the role of the subject by stating that "... man's fundamental need is not merely to exist but to act without compulsion, to gain control over his life" (p. 61). Of the notions of man, he states that "the individualistic model is inadequate, as man's innate capabilities are not a sufficient precondition for achievement. The same is also true of the social-deterministic model: although external circumstances impose restrictions and conditions on all action and also create the preconditions for such action, man still makes an active attempt to alter these external circumstances. Knowledge and skills are the instruments of action by which man regulates his environment. Motivation arises through situational action, backed up by an active, psychological, goal-oriented system, man's operating system which he programmes according to his situation. *Capabilities are the invisible resources in the individual which set the maximum limits on what he can achieve if the other preconditions are favourable. Usually they are not.* In spite of this, the word 'incapable' is used quite liberally. Thus if a man is incapable, the environment can simply disclaim any responsibility for him and move him outside the human community" (Wiman 1988, pp. 18–19).

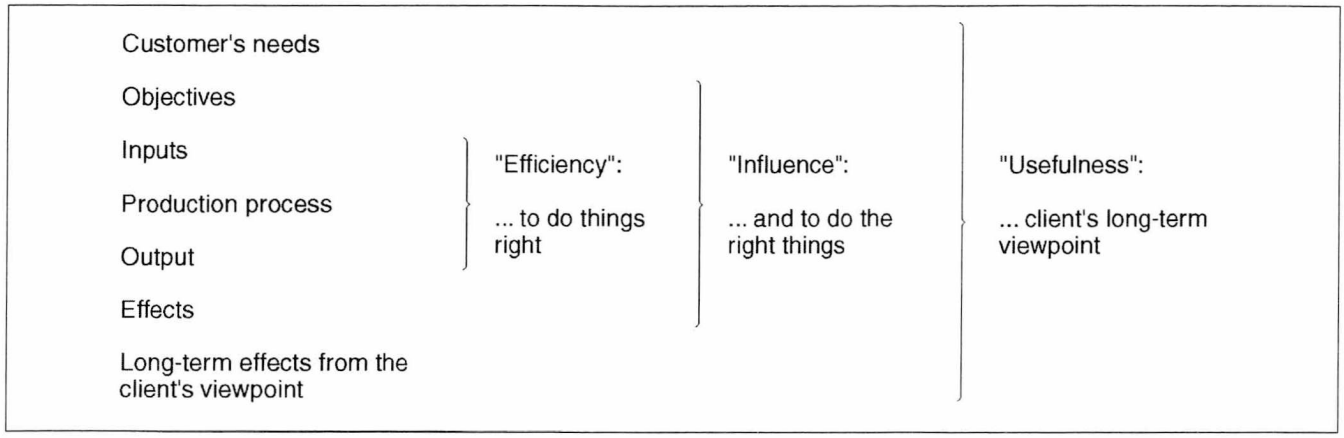
Wiman's viewpoint is interesting in that it turns attention from the individual and the household to society at large and the opportunities that it offers to the individual or household for overcoming a welfare problem or achieving an objective. It is important when setting out from the subject-oriented perspective that one should assess the degree of knowhow required for using modern information and communications technology equipment and systems and the opportunities that this offers for finding another party capable of interaction using the same instrument.

If responsibility for action and the adoption of modern information and communications technology is partly perceived as a motivation problem that the community attaches to its members, as requiring the communication of theory and skills and as guaranteeing the necessary preconditions for action, a useful set of analytical terminology can be obtained from Wiman as regards the

Table 1. *Lack of operative preconditions and achievement problems*

Lack of operative preconditions	"Problem:"
Inadequate external conditions	condition problem
Inadequate human skills	lack of skills
Inadequate knowledge	lack of knowledge
Biased interpretations	data organisation problem
Weakened motivation	lack of will
Impaired functionality	illness
Impaired functional capacities	some degree of incapability

Figure 3. *What is efficiency?*



rationality of action, as indicated in Fig. 3. This involves efficiency, influence and appropriateness as concentric perceptions of the rationality of an action.

When we approach the extensive use of modern information and communications technology at all levels of society we are dealing with the notions of influence and usefulness. How can the information society needs of the 'client' (= the Finnish citizen) be approached in the long term? How can usefulness be defined here and how should this be done when we do not even know the form that his use of information and communications technology will take?

Selection and marginalisation could be examined at a variety of levels by setting out from the above viewpoints. The aim of the current report is not to cover all viewpoints, however, but rather the analysis focuses on looking at certain basic factors, to be defined in the chapter below.

2. Objectives of the research

The following objectives were laid down for the current research:

A. To examine the manner in which a person becomes selected as a user of modern communications and information technology.
   To examine the types of person that modern information technology 'picks out' as its users and to identify the segments of the population which are evidently falling outside the use of modern information technology and electronic services. This will be examined with respect to factors such as household type, age, sex, attitudes and working duties.
B. To identify regional differences in the use made by households of modern information and communications technology.
C. To examine the extent to which the possession of modern information and communications technology resources by households increased between November 1996 and November 1997.

3. Material and methods

The main material for this survey is composed of the large series of interviews conducted in November 1996 to obtain information on the modern technological equipment possessed by 1 080 households and the use of information technology by 2 362 respondents living in these households. More detailed information on the representativeness of the population, adjustments for non-response and other related matters are given in the earlier report entitled "The Finns and modern information technology" (p. 9–12). In addition, construction of the consumer barometer of November 1997 involved collecting information on the frequencies of basic modern information and communications equipment in households.

The material is highly extensive and diverse, thus enabling interdependencies to be examined from a wide variety of perspectives. This review is restricted to an analysis based on cross-tabulation which allows the most important aspect, the description of differences, to be brought to the fore in a straightforward, systematic manner. The authors can be consulted personally for data referred to in the text but not indicated in the figures, tables or appendices.

4. Selection of information technology users and experiences gained from its use

The use made of modern information and communications technology and attitudes towards it will be discussed below with respect to households of different sizes. The assumption is that size of the households and the resulting differences in the ways in which they act are also reflected in their purchase and use of modern information and communications technology. For this purpose, they will be divided into three main categories on the basis of whether they comprise one, two or at least three persons. The relation of single-person households to modern communications and information technology will be examined by age and sex and that of the two-person households with respect to groups formed on the basis of the age of the older household member. Larger households will be divided into groups with respect to their technological resources on the basis of the age of the children (under 7 years, 7–12 years, 13–19 years, other households), as this has been shown by earlier research to be an important factor influencing the actions of the family, including the adoption of modern information and communications technology (Nurmela 1997b, Nurmela 1996).

The analysis first discusses the resources of single-person households and then those of two-person households. The third section is concerned with their use made of modern information and communications technology in these small households and the respondents' skills and experiences in their use. The same topics will then be discussed with reference to families. A separate section will be devoted to regional differences, while the empirical part terminates with an analysis of the extent to which the modern information and communications technology resources available to households increased in amount between November 1996 and November 1997.

4.1 Modern information and communications technology in single-person households

Attention will first be paid to examining the technological resources of single-person households by age, in the categories under 30 years, 30–39 years, 40–59 years and 60–74 years. Each group will be analysed for the extent to which men and women have access to modern communications and information technology equipment at home. The material is fairly small in terms of the statistical reliability attainable, however, so that it is only in the groups under 30 years and 30–39 years that the number of observations is sufficient for any statistically justifiable discussion of differences by sex, for example (Table 2). The data obtained for men aged 40–59 years and 60–74 years, on the other hand, should be interpreted very much in the spirit that "this seemed to be the case with the single males of this age who happened to come into the sample and agreed to be interviewed" rather than "this is the case with single males of this age in Finland". The above age categories were nevertheless selected in order to obtain at least some information on the manner in which the users of this modern technology are selected in the older age categories, and may as such yield some pieces of information not available at all through analyses based on the strict principles of statistical significance. Thus this report endeavours more to look at the selection mechanisms connected with the relation between man and modern information technology than to demonstrate through statistical testing that these mechanisms are of a given type.

One essential assumption here is that instruments tend to select their users through the properties and

Table 2. *Distribution of single-person households by age and sex, and extrapolation to the national level.*

Age group	No. of responses		Adjusted figures	
	Men	Women	Men	Women
Under 30 years	35	44	109 500	109 200
30–39 years	44	28	153 700	94 200
40–59 years	13	24	54 100	86 200
60–74 years	11	45	50 100	158 200
Total	103	141	367 400	447 800

Table 3. *Percentages of single persons living in apartment blocks and private houses and those living in rural areas and small built-up areas, by age and sex.*

Percentage of single-person households	Under 30 years		30–39 years		40–59 years		60–74 years	
	Men	Women	Men	Women	Men	Women	Men	Women
Living in an apartment block	81	74	57	74	63	71	42	67
Living in a private house	6	19	30	14	37	12	33	10
Living in a rural or small built-up area	9	16	36	7	46	25	45	27

uses that they have. *The resource analyses are thus presented in such a way that they describe the percentage of single-person households that have access to a given type of appliance in each age and sex category.* Some of the data are contained in the appendix tables, while differences by age and sex are illustrated in the text by means of 'population pyramids' which directly indicate the percentages of households within the various age and sex categories that have access to a given type of equipment or peripheral. This provides a clear picture of how many people within this age category are using the equipment concerned.

All in all single-person households totalled 815 000, making up 35% of the total of approximately 2.3 million households in Finland. Their distribution by age and sex in the sample and when adjusted to the national level is indicated in Table 2.

The majority of single-person households lived in apartment blocks, though private houses increased among men with age. Single men were much more likely than the women to live in rural areas or fairly small built-up areas where the range of services available was smaller (Table 3).

Percentage tables describing the applience resources of the single-person households will be presented below in the manner of population pyramids in order to visualise in a maximally effectively manner the selection which takes place within an age and sex group. It will be useful first, however, to examine the spread of new information and communications technology to single-person households in relation to certain technical appliances introduced at an earlier stage (cf. Fig. 4).

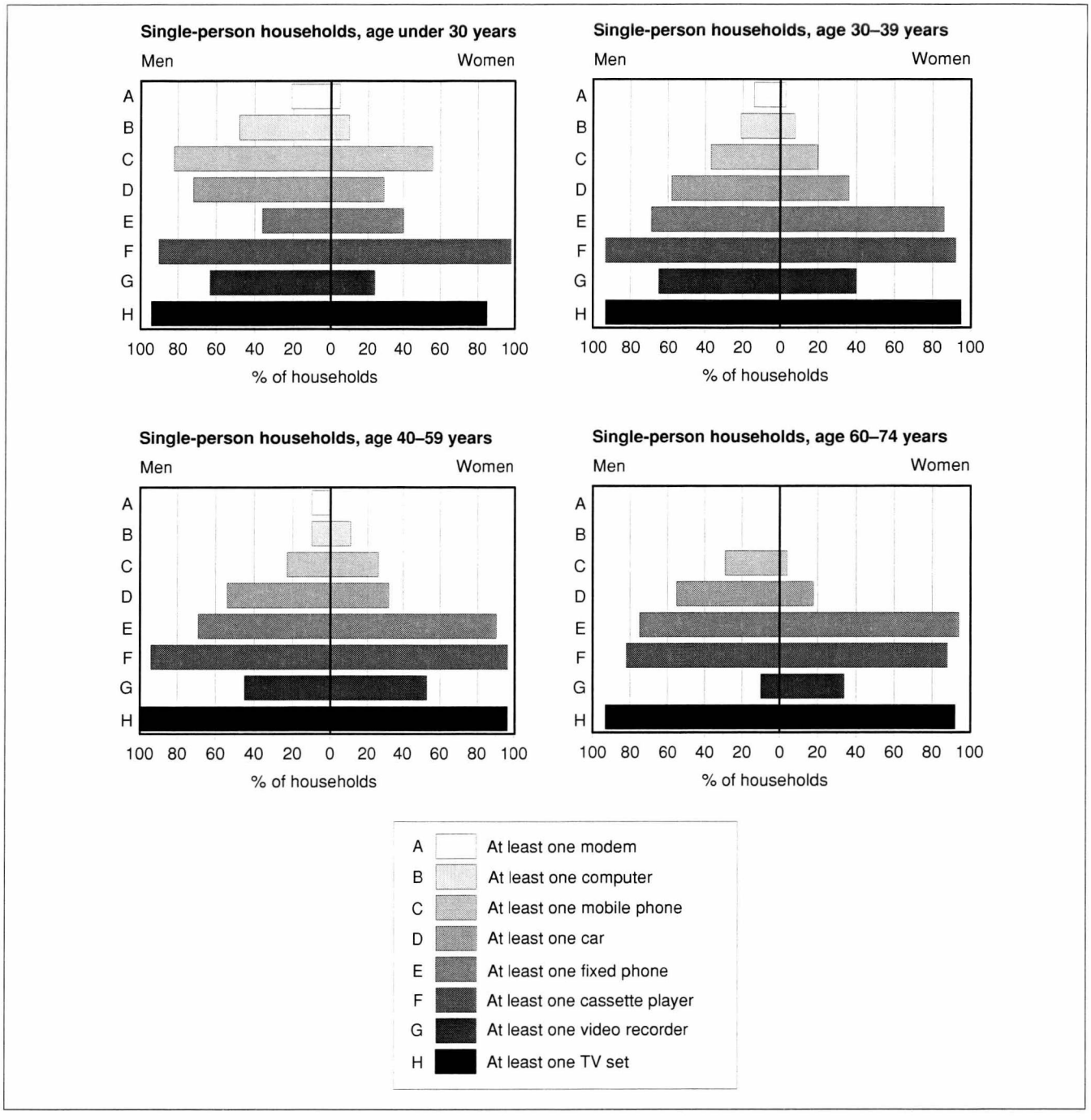
A car was more common than a mobile phone or computer in all the age and sex groups except among men and women aged under 30 years, many of whom reported that they owned a mobile phone (82% and 52%, respectively. Almost all the households had a TV, women aged under 30 years being the only group in which a substantial proportion had 'opted out'. Video recorders were markedly less common, particularly in the youngest group of women and amongst men aged 60–74 years. A cassette player was almost as common as a TV, and was even more common among single women than among the men. It was not found at all in a small group in the oldest age category.

The youngest age group differed from the others in terms of telephone usage, in that conventional fixed phones were less common than mobile phones. If the latter is regarded as a manifestation of the information society, the majority of single persons aged under 30 years can be said to meet this criterion. In the other groups, the numbers of persons reporting mobile phone ownership in November 1996 were between one fifth and one third. Apart from a car, all the above technical items appeared to be more common among single women aged 40–59 years than among men of the same age.

On the other hand, if we assume that access to a home computer is an essential criterion for information society membership, only the men aged under 30 years came close to 50% in this respect, while those aged 30–40 years in single-person households achieved 20% ownership during the period examined here. Single persons aged 60–74 years did not report any home computers and even the respondents in the other groups had purchased a computer only recently or were just planning to do so. Networking and connections to data networks are regarded as a highly essential element of the information society which can be assessed in terms of access to a modem connection. Even among the single men aged under 30 years, only one fifth had access to such a connection at home, and scarcely any of the women had one.

Thus the first indicator of selection in the case of single-person households was that the current information technology tends to attract young men most of all, and young women as well in the case of the mobile phone. As far as the spread of innovations is concerned, we are still in the stage of early adoption as regards home and leisure-time use, apart from the young men, while the oldest age group has not even reached that

Figure 4. *Equipment resources of single-person households by age and sex, in %*

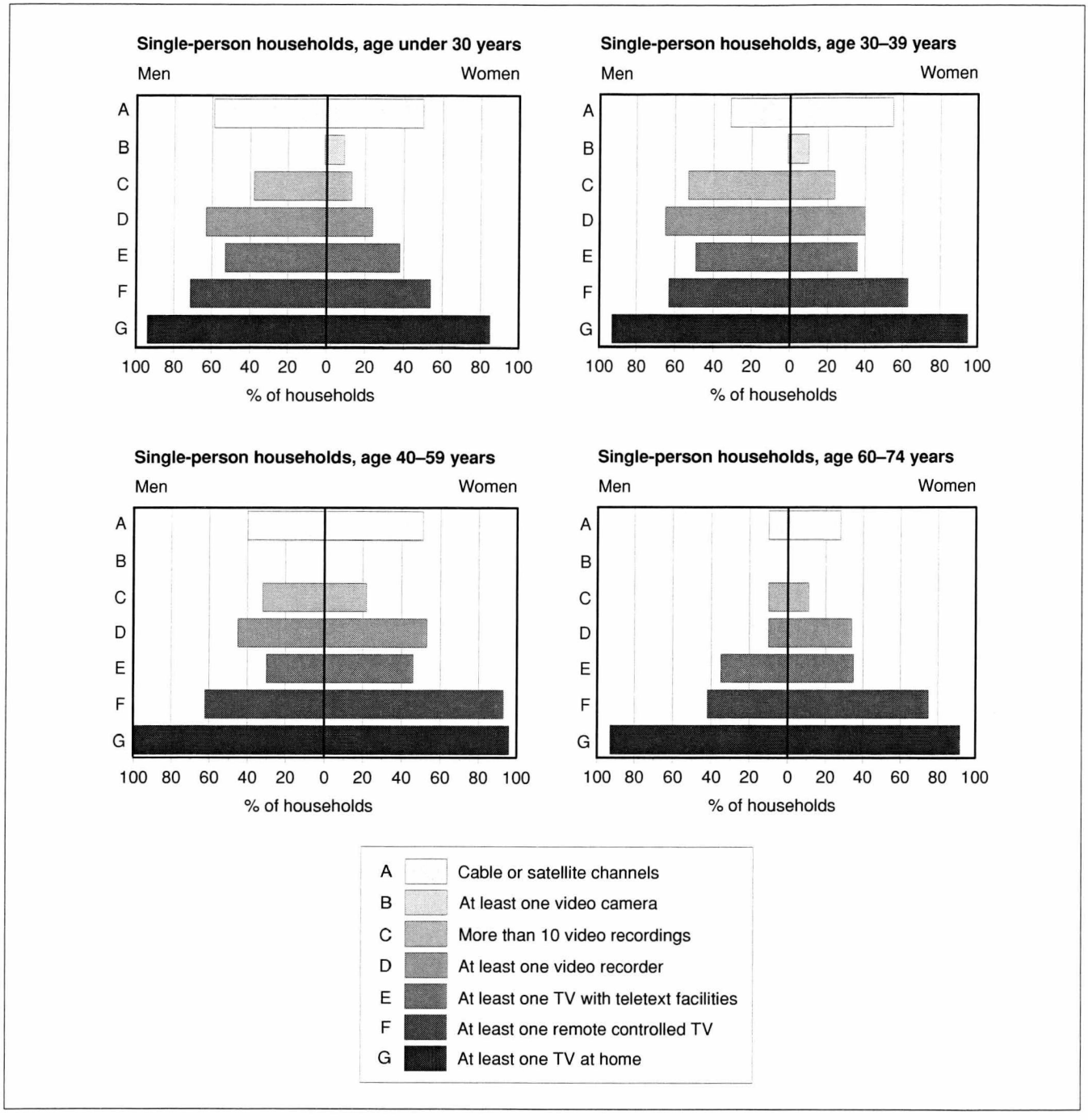


level yet. The situation with respect to computers resembles that regarding selective hobbies, i.e. approximately 5% of single-person households had access to a home computer, whereas mobile phones were found in all single-person households irrespective of age and sex.

A more profound analysis will be provided below by first examining the extent to which single-person households have adopted extensions to the 'old technology', which typically require more complex user skills and open up 'new services'. The television, its remote control device, teletext facilities and the video recorder together constitute a chain of this kind, the use of which calls for skills of different kinds but allows the individual to break free of established timetables, e.g. through video recordings and teletext facilities. These may help people to become accustomed to the freedom of action offered by information networks that are not bound by time restrictions (see Fig. 5).

By no means all the single-person households had access to a remote control device for operating their TV and selecting its channels. Men aged over 40 years apparently had old TV sets, for remote controllers were less common among them than among the women, and

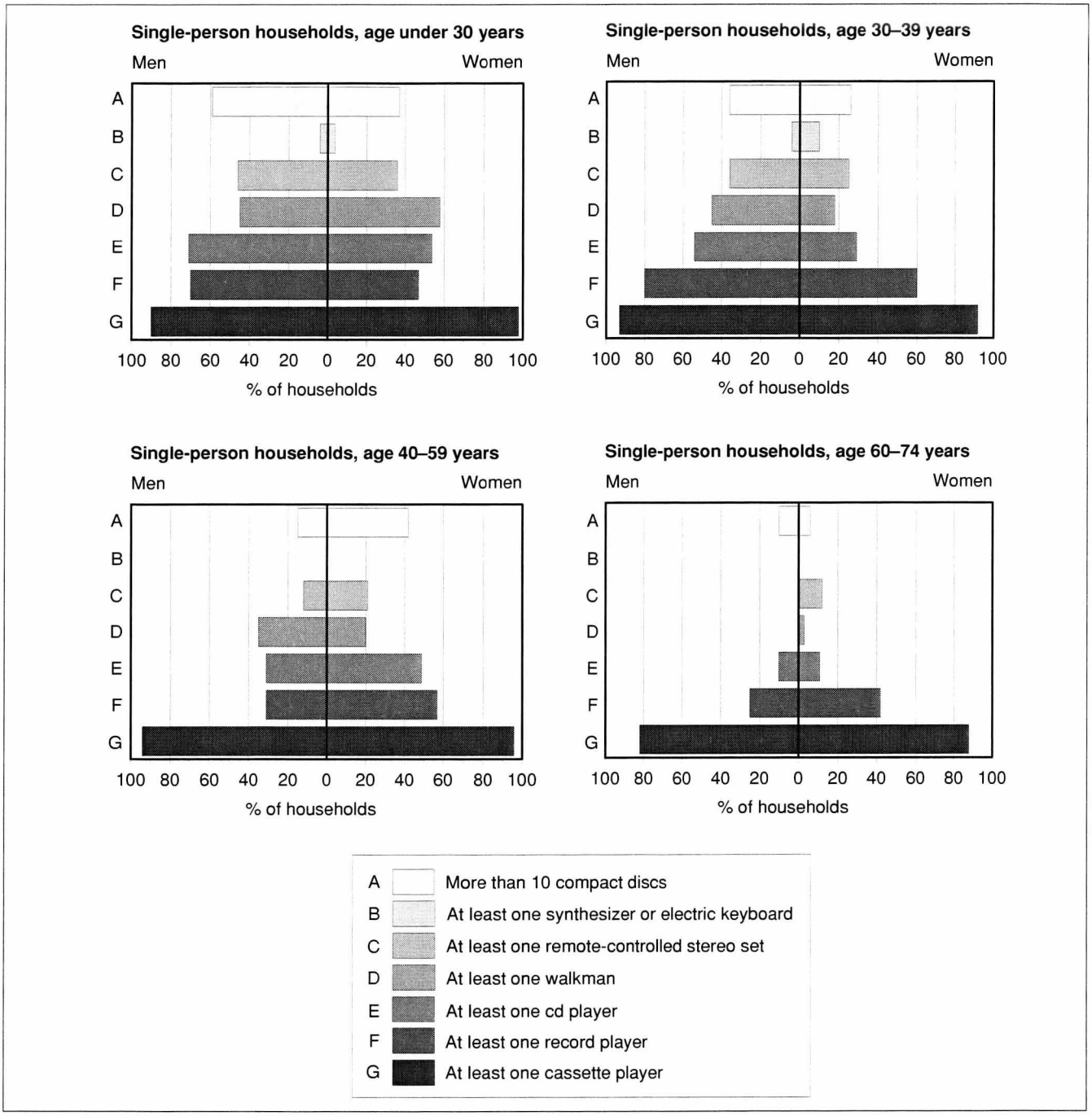
Figure 5. *TV sets and their accessories in single-person households by age and sex, in %*



even among the men aged under 30 years, only approximately a half had access to teletext facilities, which can be regarded as the first step towards unrestricted data acquisition. Thus the emergence of daily routines that involve following the news, sport and weather irrespective of time restrictions was possible only for a minority of single-person households. Teletext facilities have evidently not accustomed such people to looking for up-to-date information in networks.

Single-person households very seldom had access to a video camera, an extension to the video recorder. Access to cable and satellite channels, on the other hand, is dependent on one's place of residence and often requires living in an apartment building, which may account for most of the differences observed between the groups. Only the oldest female age group contained some people who had not joined a cable or satellite system even though the existing antenna network would have allowed this. The chain of devices that can be attached to the TV does not seem to discriminate between the sexes, although the differences in the numbers of persons possessing more than 10 video recordings may be taken to reflect a slightly more active use of video recorders among men. It can be stated by way of conclu-

Figure 6. *Equipment for listening to recorded music in single-person households by age and sex, in %*

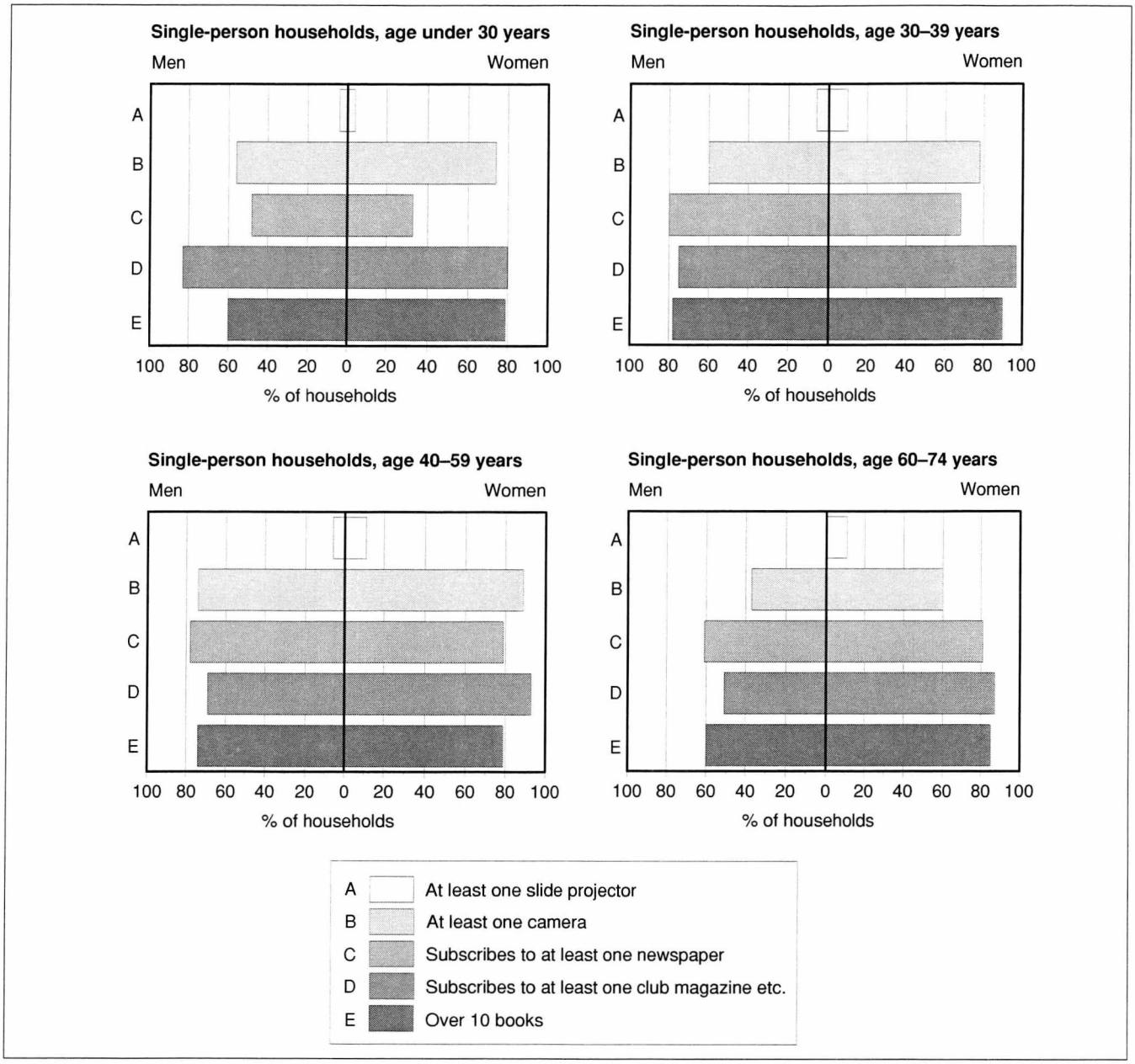


sion that the current TV accessories do not offer single-person households any particularly extensive basis for gaining the experience or practice necessary for moving over to computers in so far as their scheduling of routines and time is concerned.

Another chain of appliances which can be used to examine technology that 'opens the way' to the new information and communications era is that connected with listening to recorded music, the new forms of which again free this activity from the bonds of time and place (cf. Fig. 6).

Almost all the households had a cassette player, whereas a CD player was at best reported by only a half of a given age and sex category, apart from the young men and was rare in the oldest age group. Some 40% of the women aged under 30 years with access to a CD player had purchased it during the past year, however, so that it was indeed a novelty in this group. One surprising finding was that the walkman, which have been available much longer than the portable CD player, was rarer, even though it operates with ordinary cassettes. It should be noted that their use by the adults may be hampered by the question of social acceptability. In addition, persons driving a car may use them less often

Figure 7. *Books, magazines and photography in single-person households by age and sex, in %*

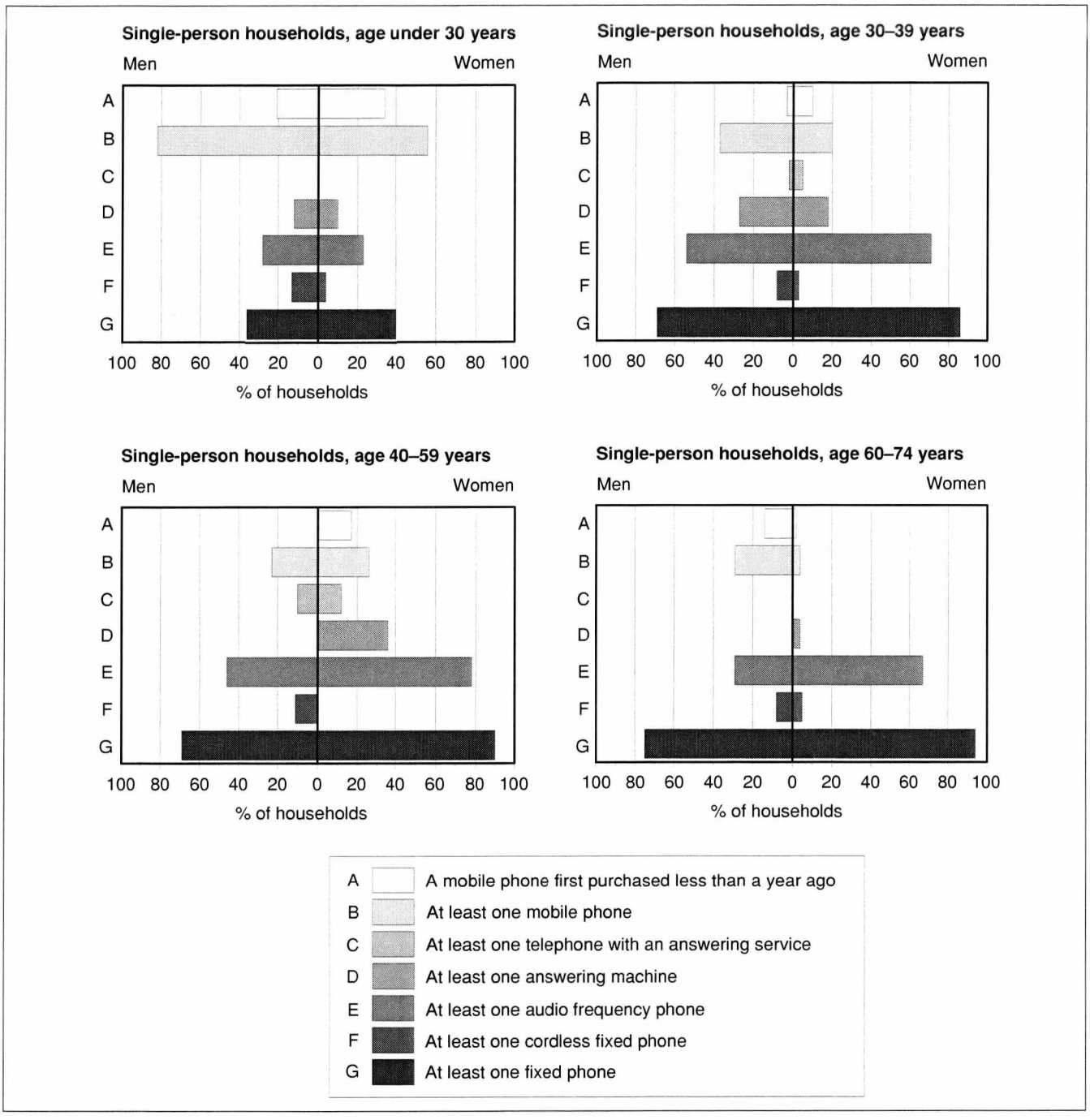


than others, because they have access to a car radio. The opportunity offered by a walkman or portable radio for listening to one's favourite music regardless of time and place has not yet become a general trend, at least not in the single-person households examined here.

The playing of music by electronic means seemed to be quite rare, as was access to a video camera, and remote control devices attached to stereo equipment were still considerably less common than TV controllers. It should be noted, though, that remote controlled radio equipment has only been available for a short period of time. Before comparing the use of telephones and computer equipment, let us examine the differences between single-person households in terms of photography and the numbers of books and magazines (cf. Fig. 7).

Both an ordinary camera and a slide projector was more common among women than among men, and women were also more likely to purchase books and subscribe to club or organisation magazines, etc. The men in the two youngest age categories were more likely to subscribe to at least one newspaper than the women, whereas the trend was exactly the opposite in the oldest category. Newspapers and computers were equally rare in the youngest male category, and even among the females of this age only one third subscribed to a newspaper. This arouses the question of whether young single-person households are already largely obtaining their immediate daily news from the electronic media (TV, radio, Internet) or reading a daily paper elsewhere. A large number of men in the youngest age ca-

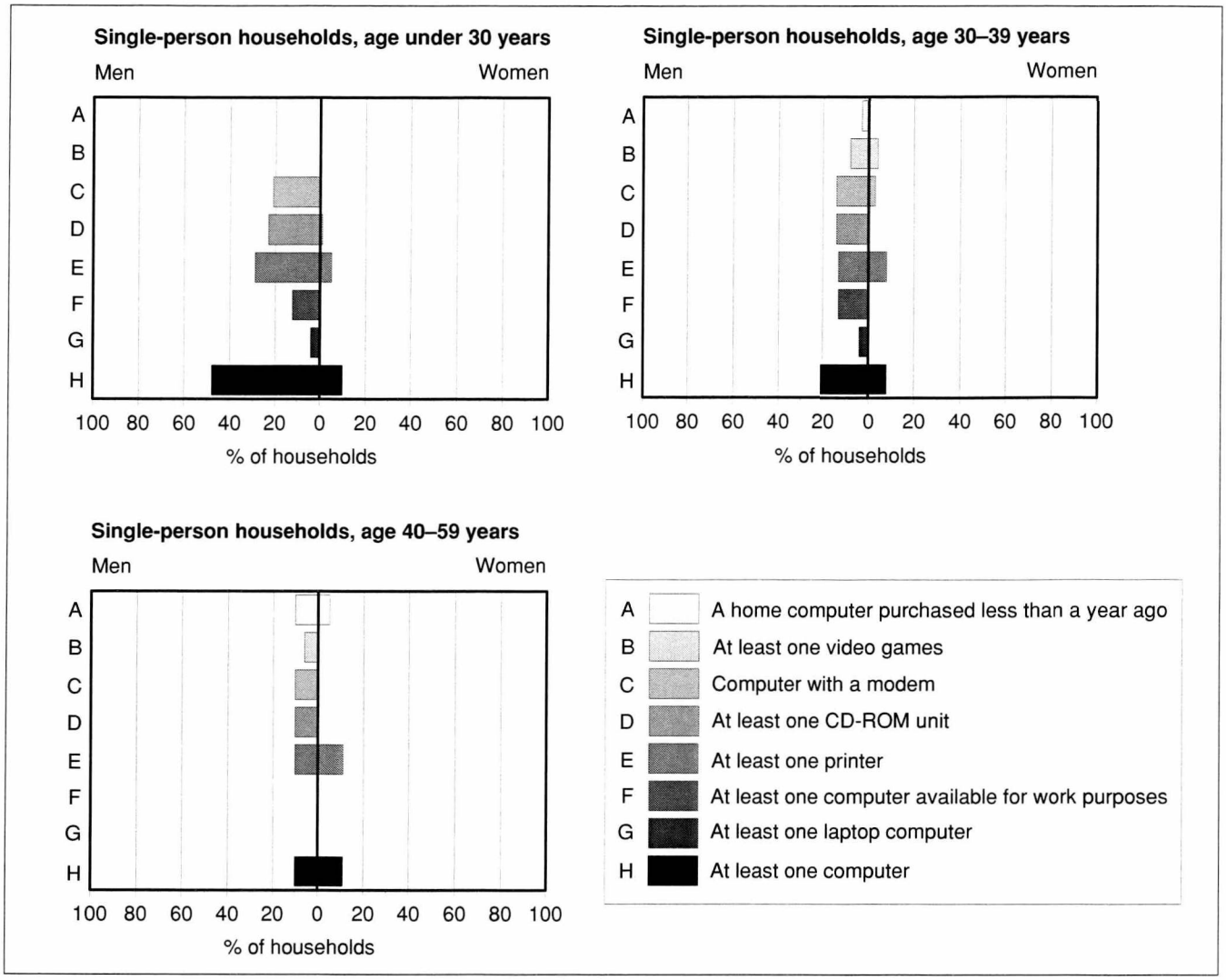
Figure 8. *Telephones and their accessories in single-person households by age and sex, in %*



tegory reported that they had less than 10 books at home.

A mobile phone was reported by as many as 4/5 of the youngest men and 3/5 of the corresponding women (cf. Fig. 8). Apart from these, almost all the women interviewed here had access to a fixed phone, which was only reported by a minority in the youngest age category. Slightly over one fourth of the men in the other categories had no fixed phone at all. Approximately 3/4 of the women aged over 30 years, but a markedly smaller number of the men, had a audio frequency phone at home. This means that men aged under 30 years were quite incapable of making use of the services obtainable by means of a fixed audio frequency phone, the situation being at best no more than satisfactory among men in the other categories. This accessibility was also only moderate among women aged over 30 years, although many of them reported having a conventional phone. The mobile phone compensated for access to audio frequency services in the youngest age group, but did not improve the situation appreciably in the other categories. The fact that a mobile phone was more common among men aged 30–59 years than among women of that age is attributable to the greater proportion of

Figure 9. *Possession of a home computer and peripherals by single-person households by age and sex, in %*



mobile phones obtained for work purposes (Table 4). Hardly any of the single-person households had access to an ISDN connection. Some of the men aged 40 years had more than one telephone line and had access to telephones displaying the number of the caller. A number of the oldest respondents in particular had given up answering machines, which was not attributable to any increase in the number of mobile phones but presumably rather to their considering the device unnecessary, difficult to use etc.

The computer, its peripherals and network connections constitute an interface or configuration which occupies a prominent position in the reading and communications skills required by the information society. The manner in which the computer tends to select its users among single-person households is indicated in Fig. 9. This selection process is evidently a powerful one, as none of the oldest respondents had access to a

Table 4. *Proportions of company mobile phones and numbers of single-person households planning to purchase their first mobile phone, by age and sex, in %*

	Under 30 years		30–39 years		40–59 years		60–74 years	
	Men	Women	Men	Women	Men	Women	Men	Women
% of company mobile phones for work	16	7	50	0	40	20	32	0
Number planning to purchase first mobile phone	10	13	12	18	14	2	7	5

Table 5. *Proportions of single-person households planning to purchase their first computer and modem and those that have recently purchased a CD-ROM unit or modem, by age and sex, in %*

	Age under 30 years		30–39 years		40–59 years		60–74 years	
	Men	Women	Men	Women	Men	Women	Men	Women
Households with no computer but planning to purchase one.	38	17	20	18	0	4	–	–
Households with a computer and planning to purchase their first modem.	16	43	50	0	0	100	–	–
Proportion of CD-ROM units purchased less than a year ago.	0	100	67	–	100	–	–	–
Proportion of modems purchased less than a year ago.	0	0	53	0	100	–	–	–

home computer, which is the reason why these categories are not included in Table 5.

The above figures contain a number of 0 items, standing for complete absence of the devices concerned. Thus none of the oldest single-person households had a home computer and only 10% of the respondents aged 40–59 years, while none of the women of the latter age had a CD-ROM unit or modem. A computer was quite rare even among men aged 30–39 years, and no more than slightly over 10% of these people had a CD-ROM or modem. Almost every second man aged under 30 years had a home computer, but only one in five had the network connection that would be required for entering the information society proper. It is quite surprising that only a few people in this group were planning to purchase a modem, let alone the other groups (Table 5). It can be stated by way of conclusion that computer-based networking, which is considered essential in all discussions of the information society, has not yet even properly begun in single-person households, not even as regards access to the necessary equipment, while actual utilisation rates may be even lower.

It is assumed that the mobile phone, which means virtually 24–hour accessibility for its user, serves as one signal of a shift to a networking way of life. In this sense, it has spread into single-person households better and with less discrimination by sex than have home computers and their peripherals. The high proportion of mobile phones acquired by people for their work can also be taken to suggest that a voice-based mobile connection is looked on as just the right answer to the evident need for easy, rapid accessibility. As a new form of the conventional fixed phone technology, and still based on use of the human voice, the mobile phone has spread into a much larger number of single-person households than has the computer and modem, which require writing and the use of a mouse, as the latter calls for far more expensive and complex equipment, at least for the time being. It should be noted, however, that the above resource differences cannot be attributable to the question of price only, but also to the prevailing communication models, in which the writing of letters has never enjoyed as important a role as the spoken word.

4.2 Use of modern communications and information technology in two-person households

Following a number of experiments, the two-person households were divided into groups in the manner shown in Table 6.

Single parents were placed in a group of their own, with the aim of examining the role of schoolchildren in the use of modern information and communications technology at home. The group is then available for comparison with two-adult households and families. The three single parent respondents with children aged 0–6 years were classified with the couples of the corresponding age. The two-person households were classified in a somewhat different manner from the single-person households in order to balance out the number of observations and ensure that the distribution data would be slightly more reliable than for single-person households. The important category of respondents under 30 years of age remains unchanged, and combining the data for the two intermediate groups ensures fairly good comparability. The oldest age group corresponds quite closely to that used for the single-person households, as

Type of household	Observations	Adjusted to the national level
Single parent with a child aged 7–18 years	26	45 400
Two-adult household, both under 30 years	50	99 900
Two-adult household, older member 30–49 years	53	95 000
Two-adult household, older member 50–64 years	106	181 800
Two-adult household, older member over 64 years	53	285 000
Total	288	707 118

Table 6. *Types of two-person household*

it is frequently the case that one of the individuals making up the couple is many years younger than the other. The two-person households aged under 50 years were by far the most urban in their place of residence, while those over 50 years were most likely to live in rural areas and to have a private house of their own (Table 7). The results will be discussed here in the same order as those for single-person households.

Possession of a car was more common than that of a mobile phone in all the groups apart from the youngest two-adult households, while a computer was more common in the two-person than in the single person households, and like a mobile phone, was much more common among persons aged under 30 years. Retired two-person households seldom had access to new information or communications technology, nor even to a video recorder, and only a small number of two-person households had access to a modem connection at home, the figure being only about one fifth even among couples aged under 30 years. Age seems to affect the extent to which even two-person households purchase new communications technology and appliances, though not as markedly as it does in the case of single-person households. The situation with single-parent households did not differ appreciably from that of two-adult households.

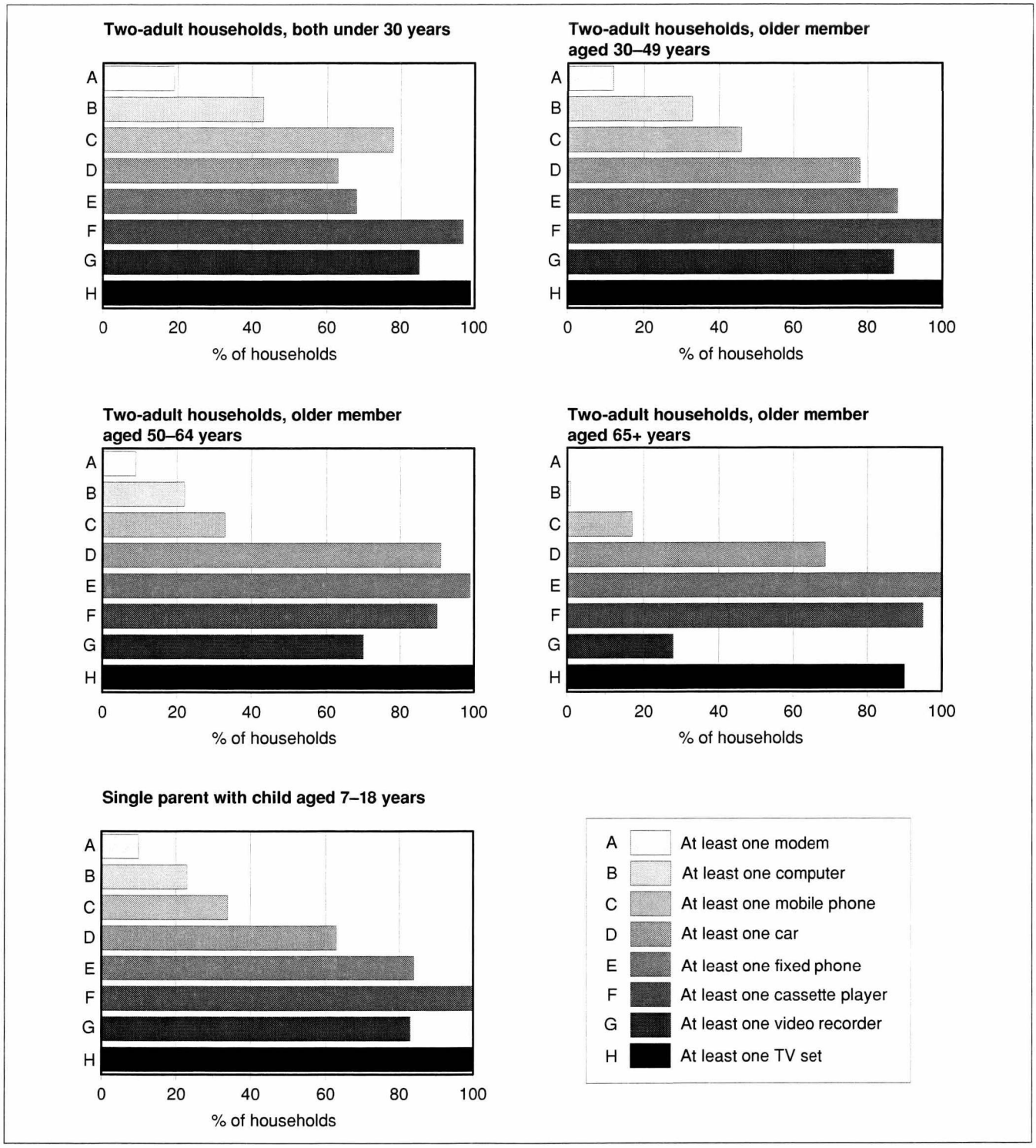
We will consider below the ability of two-person households to acquire the necessary skills via their existing technological equipment. Attention will first be paid to TV sets and related equipment.

The items listed in Fig. 11 were slightly more common in two-person households than in single person households, with less pronounced differences between the age groups, and the single-parent households were almost equal to the two-adult households of working age in this respect, with the exception that their equipment tended to be older. Retired two-person households were less likely to have access to a video recorder or teletext TV than the others, and less likely than single women of the same age. Video recordings were more common in the single-parent households than in the two-adult households, presumably because the children are active TV watchers and users of video recorders. Teletext facilities, which can be regarded as introducing their users to modern information and communications technology, were much more common in the two-adult households than in the single-person households, except in the oldest age group, and the former were also more likely to record TV programmes more or less regularly. This implies that two-person households have better opportunities for becoming familiar with the idea of watching TV programmes whenever they want and using teletext facilities to obtain news and other information than in single person households. This independence of time restrictions and freedom of selection can be regarded as one of the basic advantages of modern electronic networks. Two-person households were

% of households	Two-adult household				Single parent and child aged 7–18 years
	Both under 30 years	Older member 30–49 years	Older member 50–64 years	Older member 65+ years	
Living in an apartment	65	52	30	41	43
Live in a private house	16	24	55	53	17
Live in a rural area or small built-up area	24	27	43	39	37

Table 7. *Two-person households living in apartments and private houses in rural areas and small built-up areas, by household type, in %*

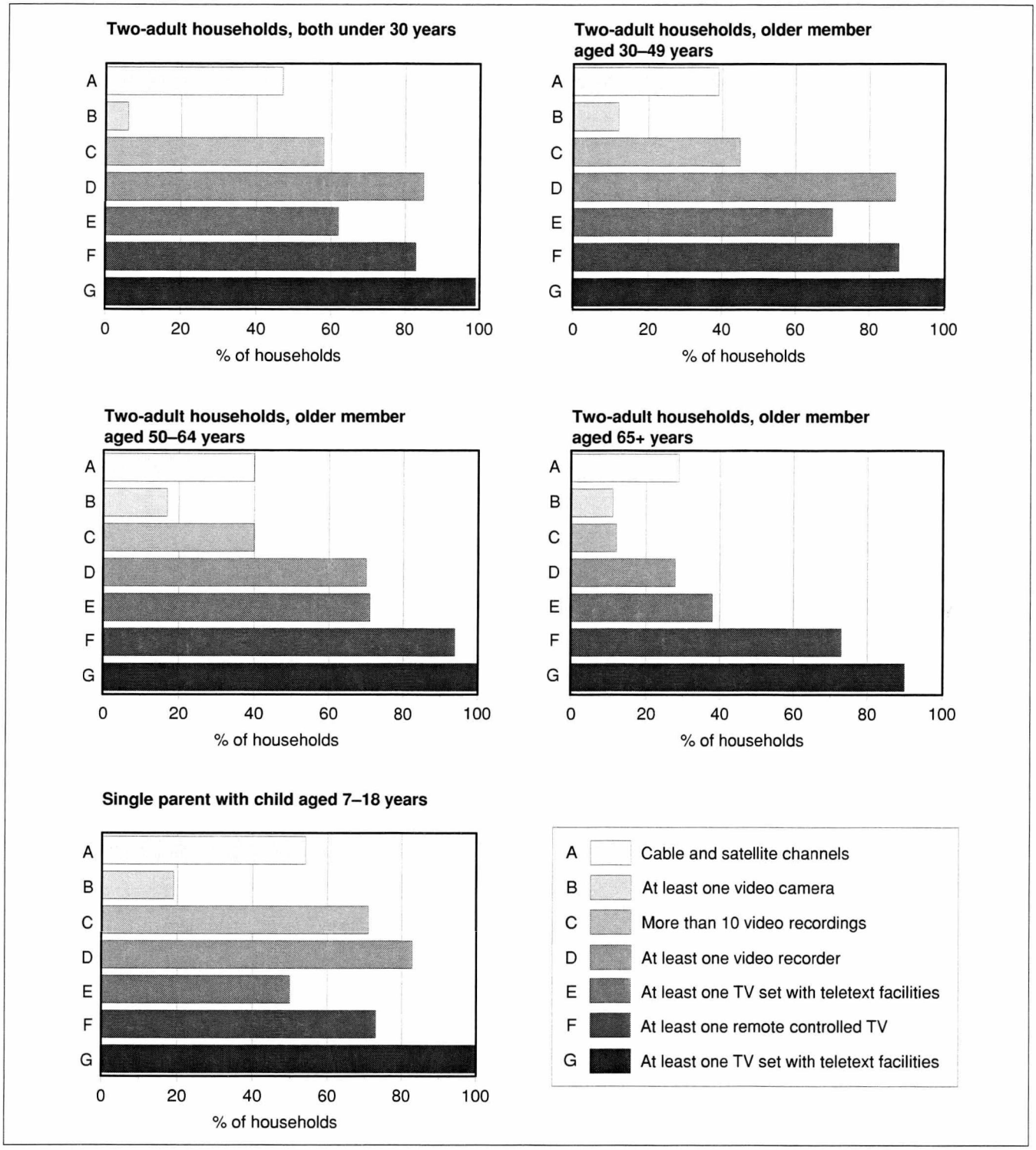
Figure 10. *Technological resources of two-person households by household type, in %*



more often able to enjoy these two benefits, albeit through 'old technology' than were single-person households.

A slightly larger number of two-person households than of single-person households had facilities for listening to recordings, as shown in Fig. 12, the oldest age group differing from the others considerably even in this respect. It should be noted, however, that the coverage achieved by the newer forms of equipment, i.e. the cd player and walkman, was still not very high in two-person households, although higher than in single-person households. Thus even in this respect two-person households were better able to become accustomed to acting independently of time and place. As there were two users in the household, however, the apparent flexibility was not necessarily any greater than in the case of single-person households. In addition, two-person households slightly more often had facilities for playing

Figure 11. *Televisions and related equipment in two-person households by household type, in %*

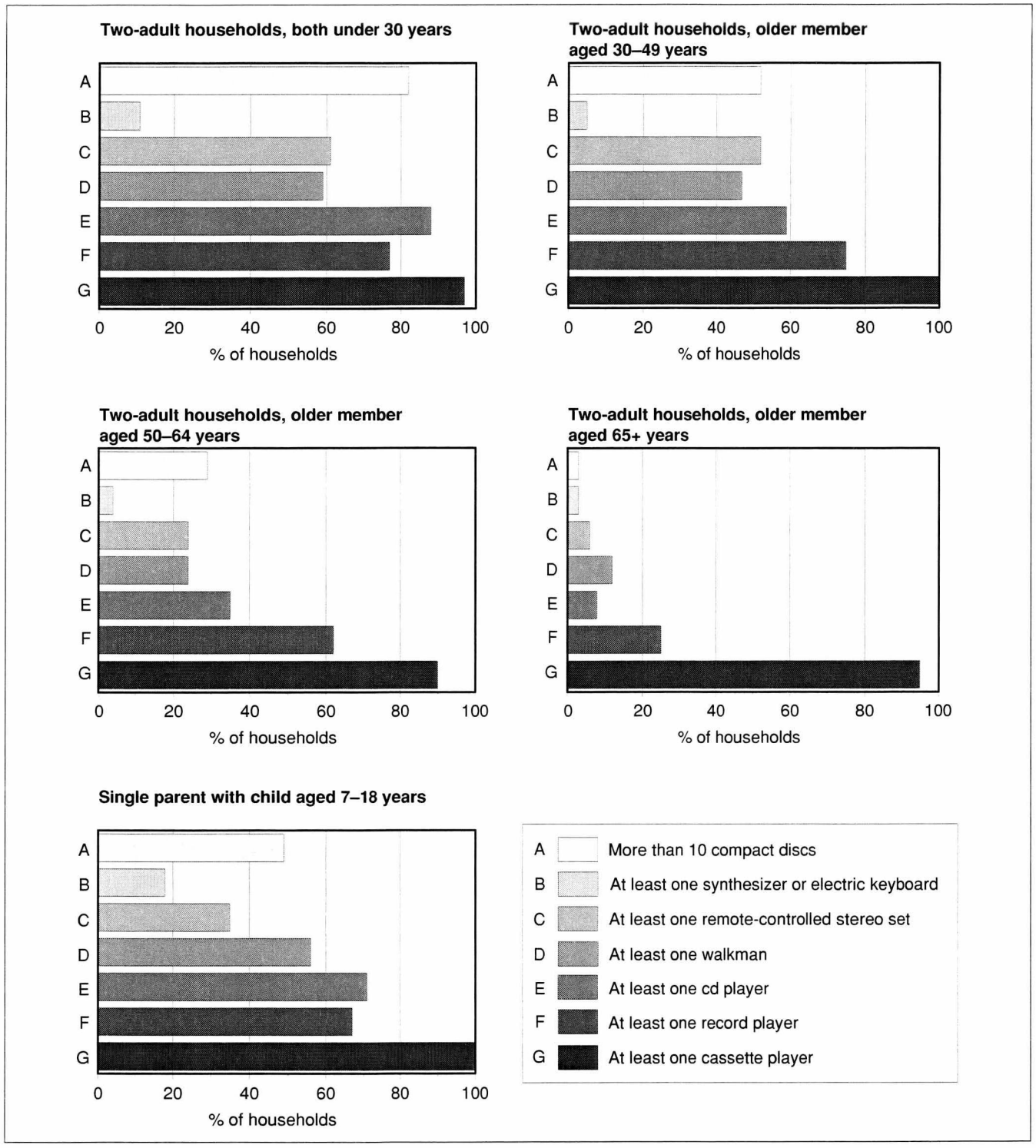


music on an electric keyboard instrument or synthesizer.

Other conventional channels for obtaining information and entertainment etc, are photography, books, newspapers and magazines. The respondents' access to these can be taken as describing the extent to which they have an active interest in them and as reflecting their ability to use the new media as means of satisfying similar needs (cf. Fig. 13).

Couples aged under 30 years stood out from the others in terms of their access to books, newspapers and magazines, showing an evidently downward trend. By no means all two-person households were subscribing to a newspaper, so that it was not the main contact with society at large in households comprising persons aged under 30 years, any more than it had been in single-person households. Apart from the single-parent cases, conventional cameras were common in the two-

Figure 12. Equipment for listening to recorded music in two-person households by household type, in %

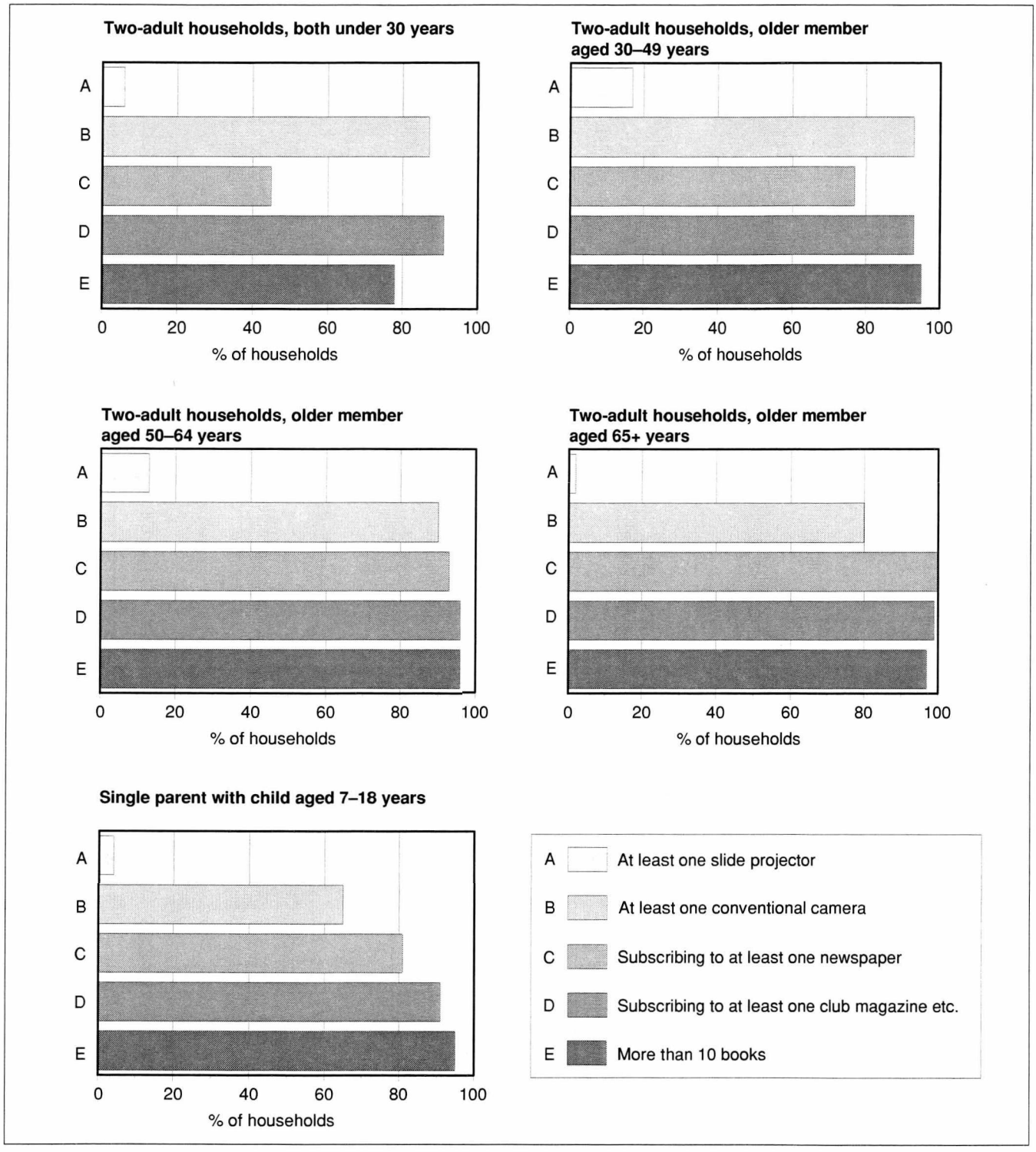


person households.

Modern communications technology in two-person households will be discussed below with respect to the frequency of telephones (cf. Fig. 14).

Fixed phones were rare in two-person households aged under 30 years but common in the other categories. There was a sudden rise in the number of cordless phones with age, these being more common than in the single-person households. Apart from the oldest age group, the respondents fairly frequently had a voice frequency fixed phone, which allows access to a variety of telephone services. The situation was equally good among single women. On the other hand, these services are also available to mobile phone users. The answering machine was not as common in two-person households as among single women aged 40–59 years, although frequencies of 42% and 24%, respectively, were reported in the youngest two categories of two-person

Figure 13. Newspapers and magazines, books and photography in two-person households by household type, in %



households.

The mobile phone was extremely common only in two-person households aged under 30 years, of which one fifth already had two mobile phones. Markedly smaller numbers were recorded for the other categories, though it was only in the oldest group that mobile phones could be said to be rare. Markedly over one third of the respondents used a mobile phone for their work, except for those aged under 30 years, the figures showing a minor difference as compared with single young men. A markedly greater proportion of two-person households had purchased a mobile phone during the last 12 months, and a larger number of them were also planning to purchase one. If the respondents aged 30–49 fulfil their purchasing plans, the number of households with a mobile phone in this category can be expected to rise considerably. No extensive purchasing plans were reported the other groups, however (Table 8).

Figure 14. *Telephones and their accessories in two-person households by household type, in %*

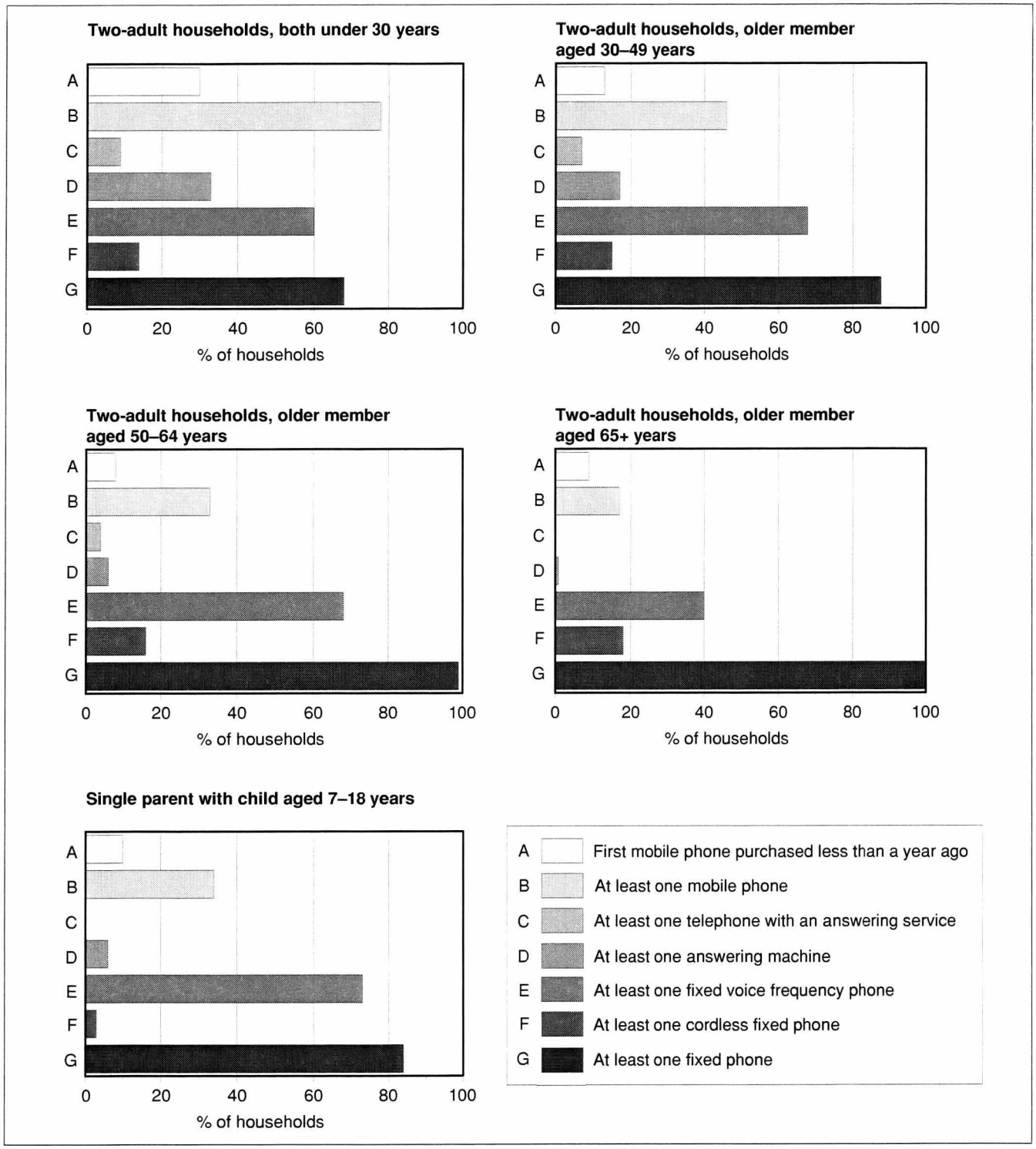
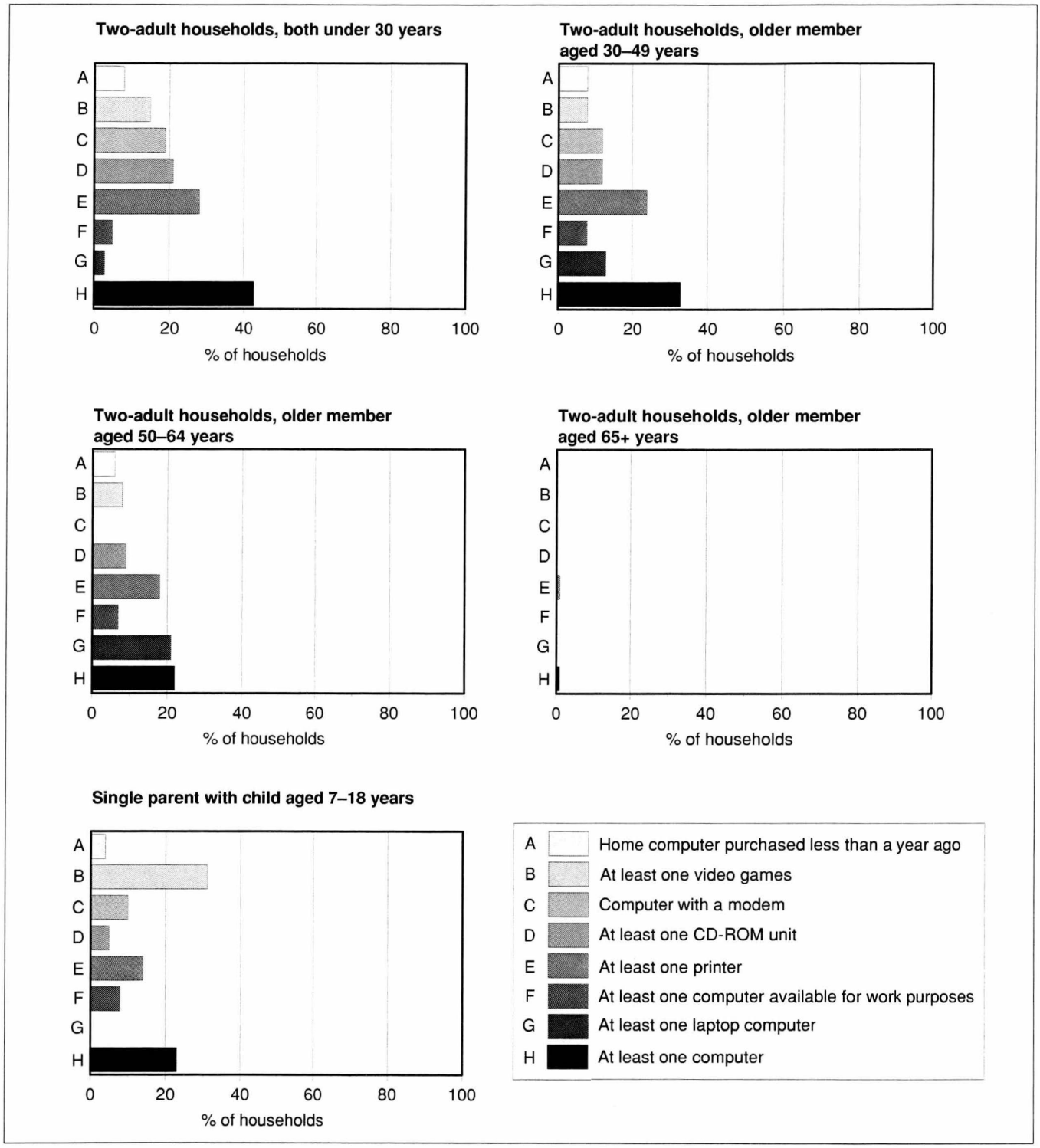


Table 8. *Proportions of company mobile phones and of two-person households planning to purchase their first mobile phone, by household type, in %*

% of households	Two-person household				Single parent and child aged 7–18 years
	Both under 30 years	Older member 30–49 years	Older member 50–64 years	Older member 65+ years	
Proportion of company mobile phones, %	17	38	38	41	32
Households planning to purchase their first mobile phone	15	34	18	5	13

Figure 15. Home computers and peripherals in two-person households by household type, in %



Only some of the households aged under 30 years had access to an ISDN connection. Approximately 5% of all two-person households reported that they had more than one telephone number, and some 5% of those aged 30–40 years had access to phones which displayed the number of the caller. New telephone services of this kind were almost equally readily available in both single-person and two-person households.

Home computers were by far most numerous in two-person households aged under 30 years, though the figure was below that recorded for single men aged under 30 years, as indicated in Fig. 15. Young women in two-person households were much more likely to have access to a home computer than single women, couples also being in a more favourable position in this respect in the other agegroups. No differences were observed between single men aged under 30 years and two-person households of the same age as regards the availa-

Table 9. *Proportions of of two-person households planning to purchase their first computer and modem and those that have recently purchased a CD-ROM unit or modem, by age and sex, in %*

% of households	Two-person household				Single parent and child aged 7–18 years
	Both under 30 years	Older member 30–49 years	Older member 50-–64 years	Older member 65+ years	
Households with no computer but planning to purchase one.	12	22	6	1	29
Households with a computer and planning to purchase their first modem.	62	54	33	0	0
Proportion of CD-ROM units purchased less than a year ago.	87	73	23	0	0
Proportion of modems purchased less than a year ago.	19	59	0	0	41

bility of computer peripherals, while the other categories of two-person households had equally good opportunities for using a home computer as had single men of the same age. Two-person households more frequently reported plans to purchase a modem (Table 9), but they rarely had a printer or CD-ROM unit, and modem connections were only just coming in, so that two-persons households with access to a data network can be regarded as a rarity. Of the single-person and two-person households aged under 30 years, only a small number had just begun to use data networks through a home computer. Connections of this kind were encountered in the other categories only occasionally.

The mobile phone, which allows for 24-hour accessibility, may presumably be regarded as a signal of entry into the networking way of life, and as such it had spread into households much better and with less restrictions of sex and age than had the home computer and its peripherals. Two-person households possessed old information and communications technology resources slightly more often than did single-person households, and this will have opened up better opportunities for learning functions characteristic of the information society at home and in their leisure time. It should be noted, however, that only a minority were actually capable of working with a network.

4.3. Use of modern information and communications technology in small households, and their related experiences and skills

This section discusses the use made by the respondents of information and communications technology equipment and their experiences and skills. The aim is to provide a general picture of the manner in which these three aspects are distributed among small households. Where the focus above was on the households' resources, i.e. on the introduction of the information society and its progress as a 'matter of circumstances', the approach here is based on the other operating preconditions listed in Table 1 (see p.). The problems touched upon will include absence of skills and knowledge, unwillingness and age-related

incapability. Although the interview questions allowed only for rough operationalisation, they serve to provide a perspective against which the tables and other empirical data may be examined.

Single-person and two-person households will still be classified here on the basis of sex and age. In terms of their financial, functional and time resources, the persons making up these households are acting in a situation which differs from that observed in the case of families with children, in that they enjoy a greater freedom of action and are able to decide on purchases and usage in a more straightforward manner.

A large number of variables were cross-tabulated by sex and age (under 30 years, 30–39 years, 40–59 years, 60 years and older). As the survey included all persons aged over 10 years who agreed to be interviewed and were living in the household of a target subject, some of the persons living in two-person households are aged over 74 years. The second members of all two-person households were not available for interview, however, and some single-parent families contained children aged under 10 years, who were thus not interviewed, so that replies were obtained only from approximately 90% of the second members of two-person households.

Members of single-person and two-person households were analysed separately in order to trace the

Members of single-person households

Age group	No. of replies Men	Women	Adjusted figures* Men	Women
Under 30 years	35	44	115 511	100 750
30–39 years	44	28	167 095	85 424
40–59 years	13	24	59 927	81 118
60–74 years	11	45	55 991	146 155
Total	103	141	398 524	413 518

* The replies obtained from the personal interview were assessed using different weights from those employed in the equipment section. This explains the minor differences in the adjusted figures between the two sets of data.

Members of two-person households

Age group	No. of replies Men	Women	Adjusted figures Men	Women
Under 30 years	62	63	129 312	128 912
30–39 years	52	72	98 085	148 768
40–59 years	52	75	106 635	151 271
60–74 years	92	81	212 418	205 358
Total	258	291	546 450	634 327

Table 10. *Distribution of members in the single-person and two-person households by age and sex and adjustment to the national level.*

possible influence of living alone or with someone else on the use of information and communications technology. It should be noted, however, that as the number of single persons in the various age and sex categories was fairly small, the tables should be approached with the same caution as in the equipment section.

This section will first discuss the use of equipment existing in the home and then the use of computers and network connections in general, including that taking place at work, at school and for study purposes. The section ends with a brief review of opinions and views regarding the information society.

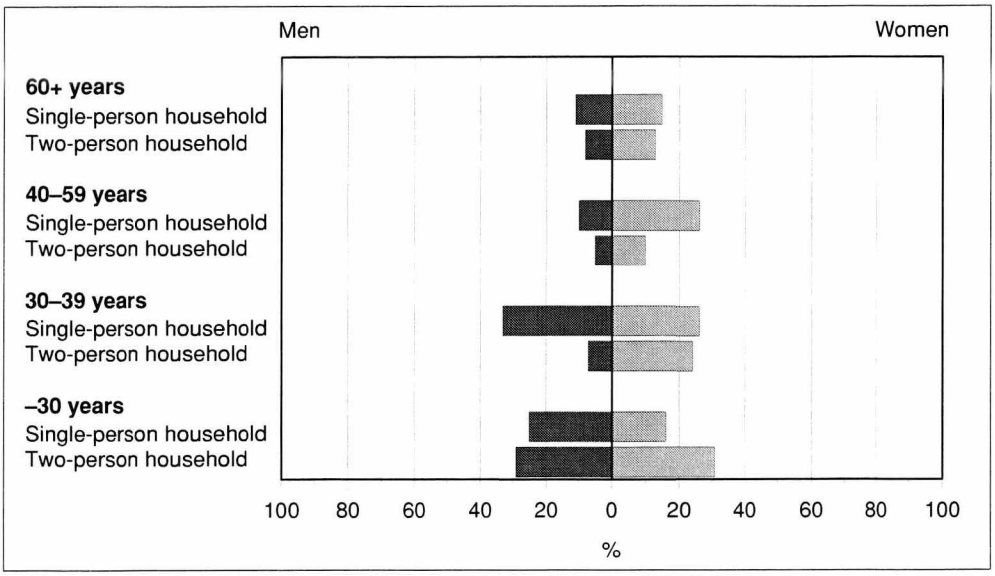
The telephone in small households. Use of the telephone will be outlined here only in the form of a few diagrams and descriptions. The topic can be examined in much more detail by consulting Appendix Table 1, bearing in mind the above restrictions on the material, of course.

Calls made from and received at home during a week were as frequent among young men as among young women, but in the older age groups, women used the telephone more frequently than men. categories of whom were more active than the former in this respect. Approximately a half of the single-person and two-person households reported less than 10 calls from home or received at home during their leisure time. Persons aged under 30 years were least likely to have less than 10 calls a week (slightly over 30%), whereas the highest figure in this respect was recorded for persons aged 60 years or over (approximately 70%). It also seems that apart from the youngest age group (under 30 years), single persons had far more telephone contacts than did two-person households. It should be noted, however, that single-person households with no phone were more common than the corresponding two-person households. The single-person households which did have a phone also made more active use of it during the week, over 20 calls/week (Fig. 16). Two-person households have two phone users, of course, so that the total number of calls may well exceed that recorded for single-person households. The relative number of calls per person may be less in such cases, however, as people living in two-person households may often share the same friends and pass messages on to the other.

In cases where the respondent had access to both a fixed and a mobile phone, calls made using the latter were longest in the youngest age group. Mobile phones generally seem to cut down the length of phone calls.

The respondents' skills in using an answering machine were good, except for the elderly women living in two-person households. 40–70% of the respondents reported good mastery of home telephone functions, the best skills being recorded for single men and the poorest

Figure 16. *The members of small households making over 20 calls from home and in leisure time, by household size, age and sex, in %*



for elderly women living in two-person households. This indicates that the number of people who considered their skills to be good decreased with age and that very many of the people living in small households were uncertain of their ability to use an ordinary telephone.

Single persons seem to use the telephone to contact the outside world more than do two-person households. By no means all the respondents felt that they were able to master the use of the phone as means of communication completely, however, in that they were uncertain of how to use the many functions available with the most sophisticated new telephones in particular. (Appendix Table 2)

The men living in small households were much more likely than the women to identify themselves well or fairly well with the statement that "I only call somebody if I have good reason to do so". This was reported by at least 2/3 of the men regarding their home or leisure time behaviour, and as many as 90% in the oldest age group, as opposed to approximately 40–60% of the women. The trend increased with age and was more common with members in two-person households.

Another statement which could be connected with the use of the phone as a network society instrument was that "It is easy to call a stranger", which was accepted by the majority of the respondents irrespective of age and sex (57–85%). Two-person households were systematically slightly more uncertain of the applicability of the statement than were single-person households.

The third statement, "I easily pick up the phone to call somebody" (Fig. 17), was accepted by a slightly smaller number of the respondents living in small households (20–76%). The women identified themselves with it more readily than did the men. The results also suggest that the younger the respondent, the more prone he or she was to agree with the statement, which was accepted by only one fourth of the single men aged over 40 years.

The majority of small households identified themselves readily with the statement "I only call somebody, even a stranger, if I have good reason to do so", though they may not come to think of the phone as a means for settling everyday affairs. In addition, considering that 2/3 of the respondents would like to keep their calls short, the men in particular agreeing with the statement almost entirely, the telephone cannot be regarded as a medium for networked communications in leisure time at home in small households, except for the majority of the youngest age group.

The opposite pattern of behaviour was suggested by the fact that at least 2/3 of the women identified readily with the statements "It is nice to chat on the phone" and "I want to know how my friends and acquaintances are getting on". 3/4 of the men aged under 30 years customarily call their friends (Fig. 18), which is evidently largely attributable to the commonness of the mobile phone among them and the entirely new type of communication represented by it.

The small households examined here regarded the statement "The phone is an essential part of my way of life" as being highly applicable to them (60–93%) irrespective of age and sex, the trend being slightly more common among the females. The phone may occupy as slightly more important position in the way of life of the youngest and oldest age groups. The attitudes towards the above statements suggest that small households in Finland perceive the phone as an everyday, widely approved medium of communication, though perhaps not, to exaggerate slightly, as a problem-solving tool.

The role of the phone in the acquisition of information

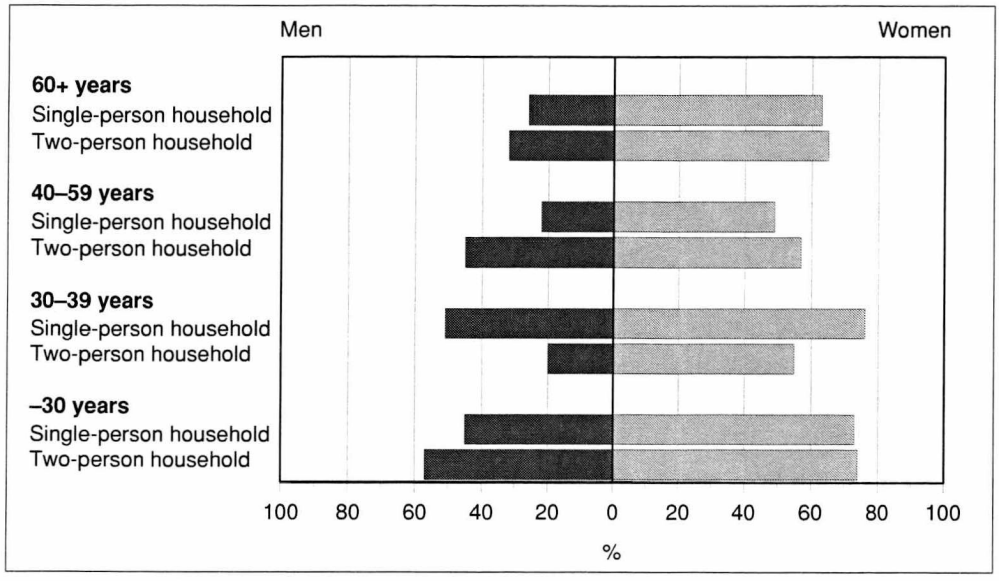


Figure 17. *Numbers of persons in small households agreeing with the statement "I easily pick up the phone to call somebody", by household size, age and sex, in %*

can be examined indirectly by looking at the extent to which the Finns dial service numbers (cf. Appendix Table 3). Generally speaking, the respondents made little use of these. The youngest respondents had called directory inquiries most frequently, single persons more often than the members of two-person households, whereas the figure for the oldest category was 1/3 or even less. 1/4–1/2 of the females had called vehicle timetable numbers (apparently not owning a car), the figure for the males being highest in the age category 30–59 years i.e. 1/4. Even at best the number of persons who had called bank service numbers totalled 1/5 of the respondents. The minimal use made of service numbers by the small households does not support the idea that people would readily begin to use significant services by dialling 'chargeable' numbers.

Young respondents, the women more often than the men, were more likely to report a large number of contacts with family members and friends as the reason why they use the phone, which may in part also account for the differences observed in this respect. In addition, young people, those aged under 30 years in particular, have a larger number of friends to contact, i.e. they can be said to have innate contact needs.

The use of the phone in a manner characteristic of the information society is represented by voting in TV and radio programmes and phoning in questions to these. Men aged under 40 years and women aged 30–59 years were fairly active in the former respect (1/4–1/3, respectively), but very inactive in the latter.

It can be stated by way of conclusion that, as expected, the phone was a more integral part of the everyday lives of single-person households than two-person households. No appreciable systematic differences were observed between the household types examined here.

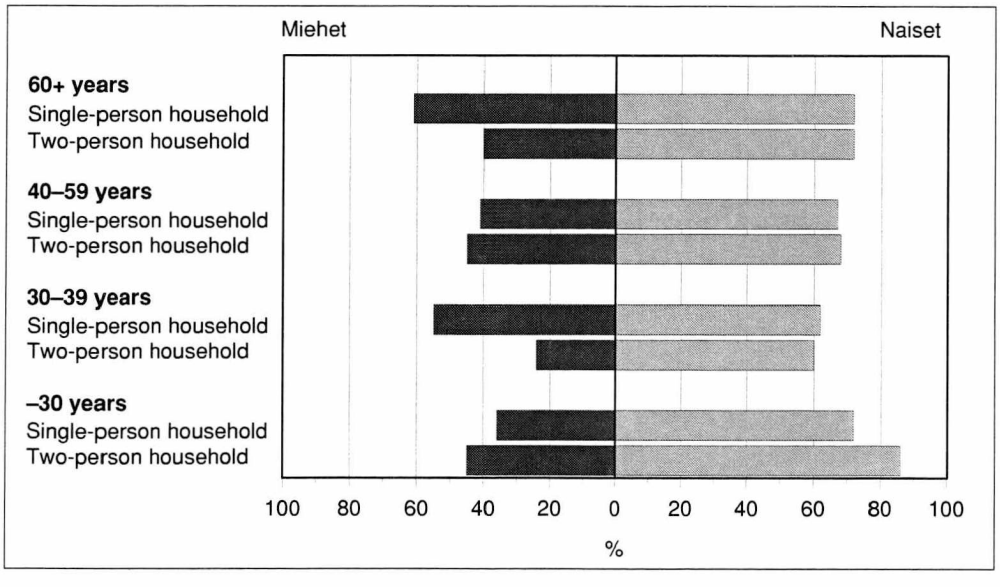


Figure 18. *Numbers of persons in small households agreeing with the statement "It is nice to chat on the phone", by household size, age and sex, in %*

Television accessories as a gateway to modern information and communications technology in small households. The use of the TV, teletext facilities and a video recorder will be discussed below with the aim of analysing whether these have provided the respondents with capabilities that would help them to use computers and network services.

A summary will be presented below of factors connected with the use of the TV, as shown in Appendix Table 4. The average daily viewing time varied considerably according to the respondent group and household type (range 157 min – 353 min). Watching TV was slightly more common among single respondents than among those in two-person households representing the same age group and sex. The men aged 40–59 years and the women aged over 60 years were the most active in watching TV. The role of TV as a part of everyday life is reflected by the intensity with which it is watched. Over a half of the men aged under 40 years and women aged under 30 years reported that the TV was on even though they were actually doing something else, whereas only 1/5–1/4 of the oldest age group were using it as a background entertainment of this kind. 1/10–1/4 of the respondents seldom watched TV. TV watching seems to decrease with age among men but to increase slightly among women. Selective TV watching and video recording seem to increase among females with age but to decrease among males.

All the male respondents apart from those aged over 60 years were readily able to tune their TV and video recorder to the correct channels, but only the age group under 30 years among the females. Since 40–57% of the female respondents in the other categories did not know how this was done, it may be concluded that their technical experience with the use of a TV set and video recorder would not greatly facilitate their adoption of other types of technology.

The remote controller offers an opportunity for selecting and mastering TV information or entertainment easily and for jumping rapidly between the channels. This was most often used to switch to other channels during commercial breaks or in the middle of boring programmes. Persons aged under 30 years seldom used it for deliberate programme selection, whereas the older age groups were more likely to do so. The number of 'channel scanners', i.e. persons constantly moving from one channel to another, was greatest in the age group under 30 years, i.e. 17–37%, but very small amongst those aged over 40 years. It seems that young people living in small households have already begun to adopt the logic of browsing and scanning, which constitutes an essential functional feature of the world of data networks.

The reading of teletext pages, some of them almost in real time, involves an active process of data search and browsing. These facilities increase one's freedom of action in terms of time and offer access to 'services' of a kind basically resembling those available through information networks. An interactive element is also present in that there are separate teletext pages where people can buy or sell things or just chat with others. In addition, the user interface is easy to operate and much more readily available to small households than is a computer or modem connection. The use of teletext facilities among single-person and two-person households will be discussed below (cf. Figs. 19–23 and Appendix Table 5).

The number of daily users of teletext services at home, i.e. those who had a routine in this respect, exceeded over a half only among the males aged under 40

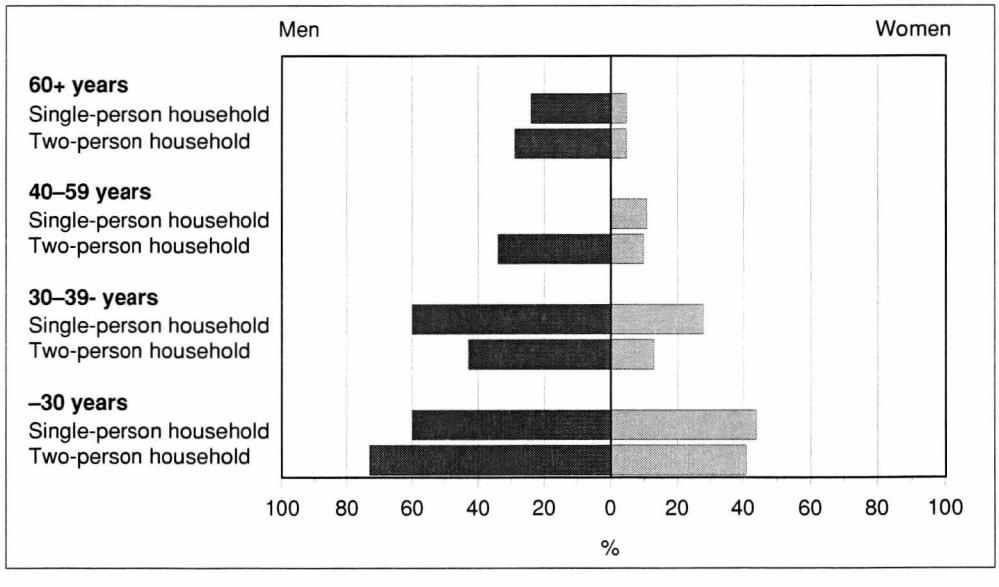


Figure 19. *The members of small households using teletext facilities daily, by household size, sex and age, in % of those with access to such facilities*

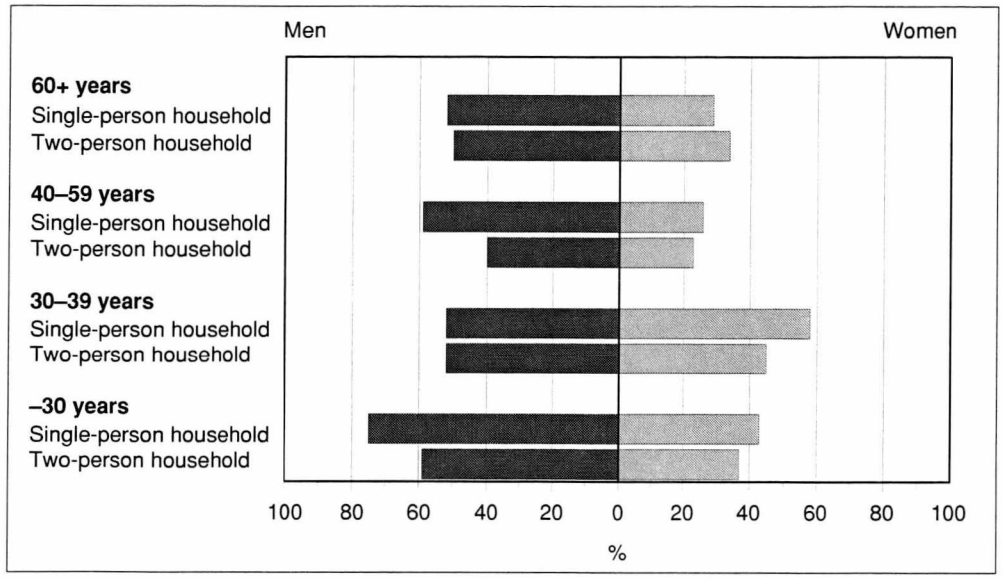


Figure 20. *The members of small households reading teletext news pages at least weekly, by household size, sex and age, in % of those with at least some experience in the use of teletext facilities*

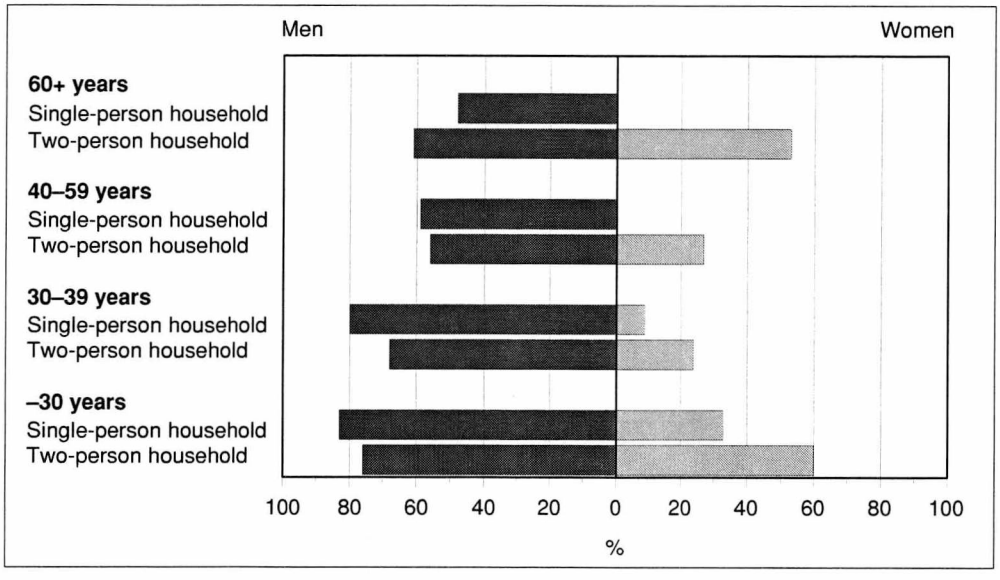


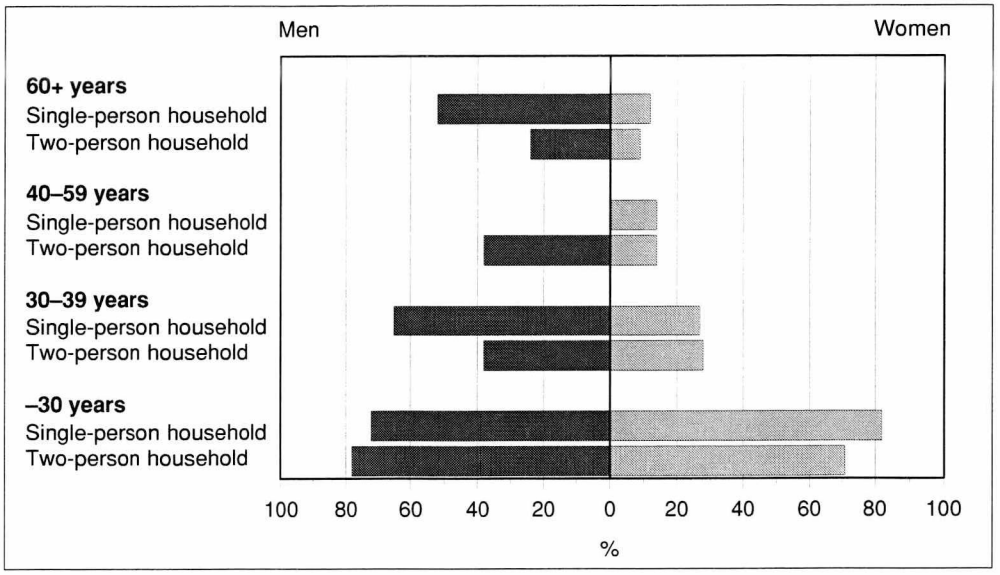
Figure 21. *The members of small households reading teletext sports news pages at least weekly, by household size, sex and age, in % of those with at least some experience in the use of teletext facilities*

years, whereas more than a half of the respondents aged 60 years or over had never used teletext facilities at all, so that their details in the diagrams below are based on only a small number of observations. The men seem to be slightly more active teletext users than the women. Separate diagrams will also be provided describing the frequency with which the four most commonly used types of teletext page are browsed. Of these, the sports pages, which also include real-time data on sports events and positions, were most popular among the men. The women were mainly interested in pages offering the latest news in brief which could be read at the most convenient moment.

The youngest age group in particular had also contacted the pages listing TV programmes. This may be attributable to the fact that they were less likely to subscribe to newspapers in which details of TV programme are available free of charge. The weekly consulting of timetables was even less common, which is quite natural, as details of local transport are not available in teletext form.

It can be stated on the basis of the above that services with a content that is really of interest to people have been able to attract a large number respondents of small households to use them regularly. These include sports results, at least among the men, while young people are more interested in the pages that list TV and radio programme. Both types involve aspects that resemble the use of data network services. News services have to compete with many other more accessible forms, however, so that news-hungry individuals will scarcely move over to using data networks. There were respondents in some of the groups who had left a message or advertisement on a teletext chat board, and some had purchased things through the shopping channel or teletext page. People of this kind were to be found

Figure 22. *The members of small households consulting teletext pages at least weekly for details of TV and radio programmes, by household size, age and age, in % of those with at least some experience of using teletext facilities*

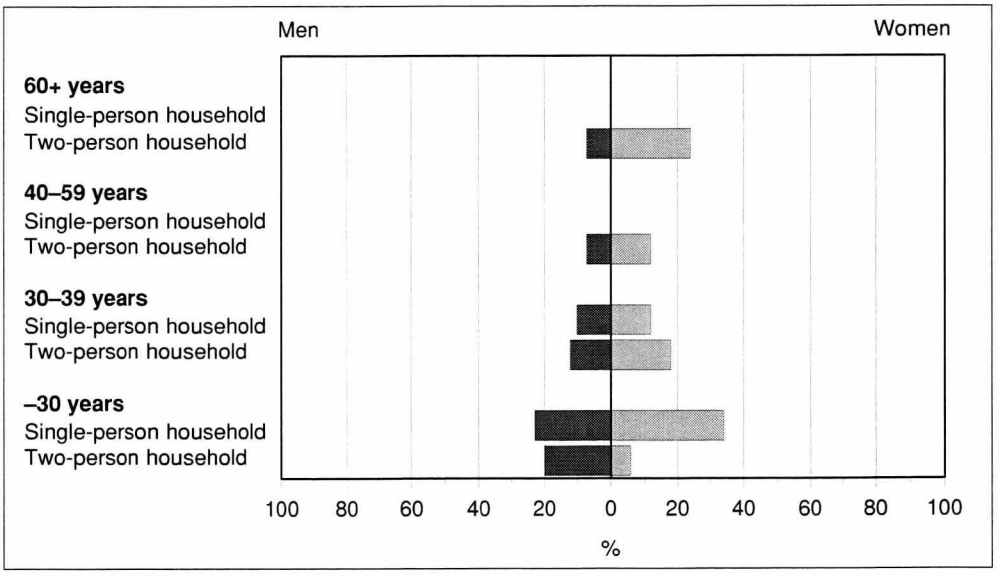


in a larger number of the age and sex categories of respondents in two-person households. It is thus no wonder that network shopping has not yet really caught on, as people are not (yet) fully accustomed to using even these more familiar forms of electronic communication.

In terms of the number of users, teletext shopping still has a long way to go compared with mail order systems, as suggested by the fact that, apart from the oldest age group, over a half of the females had purchased something from a mail order firm at least once during the previous year, and there were categories in the age groups under 60 years in which over a half of the respondents had used this form of shopping at least twice. The men were less active in this respect and also used the mail order services less frequently, so that only some of those in the category under 40 years had tried it. Thus the current situation with network sales is characterised by the fact that, first, women accustomed to using the mail order system have not yet even entered the information networks, at least not those living in small households, and, secondly, most of the articles typically sold through the networks may be of a kind that women do not normally purchase from mail order firms. It therefore seems quite unlikely that network sales directed at private consumers will make any rapid advances in Finland in the near future, assuming that experiences gained from similar types of shopping would promote the adoption of this new form. Only a couple of people out of the total of 2 300 respondents reported that they had purchased something through the Internet, and only one had used electronic money.

Use of home computers and network connections in small households, and their usage skills. It was stated above that some features connected with the use of the remote controller and teletext facilities may introduce users to the habit of browsing and scanning sources of information in a manner which resembles

Figure 23. *The members of small households using teletext facilities at least weekly for checking public transport timetables, by household size, age and sex, in % of those with at least some experience in teletext use*



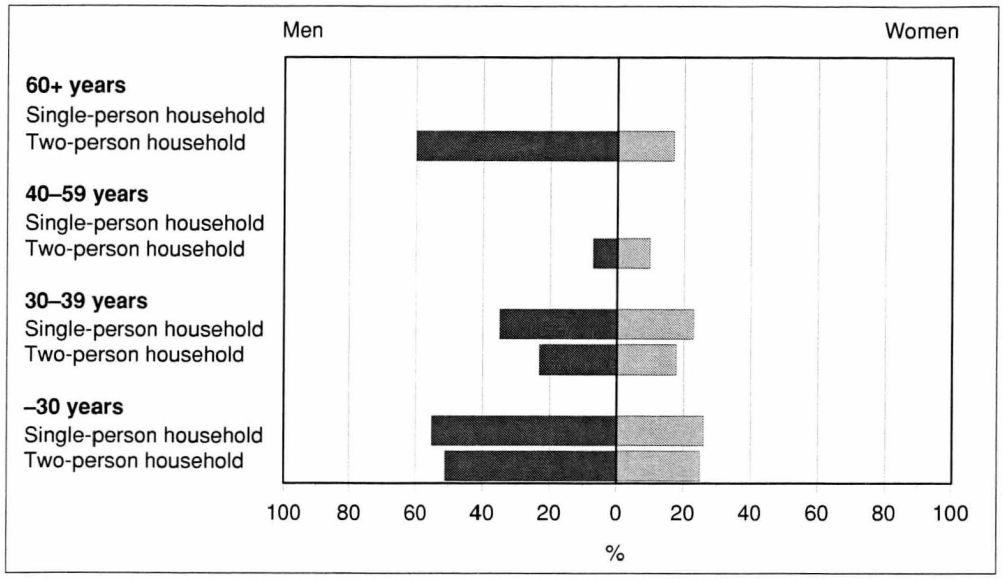


Figure 24. *Small households using a home computer daily, by household size, age and sex, in % of those with at least some home computer experience*

the use of information networks. Users of this kind were typical of the youngest age groups, who were also the most likely to have access to computers and network connections in the first place. Attention will be paid here to the use of home computers and network connections and to the respondents' assessments of their own skills in using a computer.

The regular use of home computers and network connections, provided that the hardware is of a kind that allows for such connections, is illustrated in Figs. 24–27 below and in Appendix Table 6. The males aged under 30 years living in small households were the only category where more than a half were using a home computer daily, though there was also a group of daily users (18–35%) among men aged 30–39 years and women aged under 40 years. The proportion of persons who were using a home computer at best occasionally, women in particular, increased with age. A large number of the respondents with access to a home computer, apart from men aged under 30 years, had been using one for less than two years, so that many of them were still only practising with it.

The proportion of daily e-mail users was quite small among men aged under 30 years, a half of whom did not use it at all at home, due either to the absence of a connection or a lack of interest. The situation was even worse among the women, and the Internet was used even less.

Of the few men aged under 40 years who had access to network connections, a minority also contacted banking services on a more or less regular basis. A smaller number of the respondents had connections to Telesampo/Infotel, chat boards and services of different types (e.g. employment vacancies). Some of the respondents had even sent e-mail messages from home.

In summary, apart from the men aged under 40 years, none of the categories of respondent living in single-person and two-person households had access

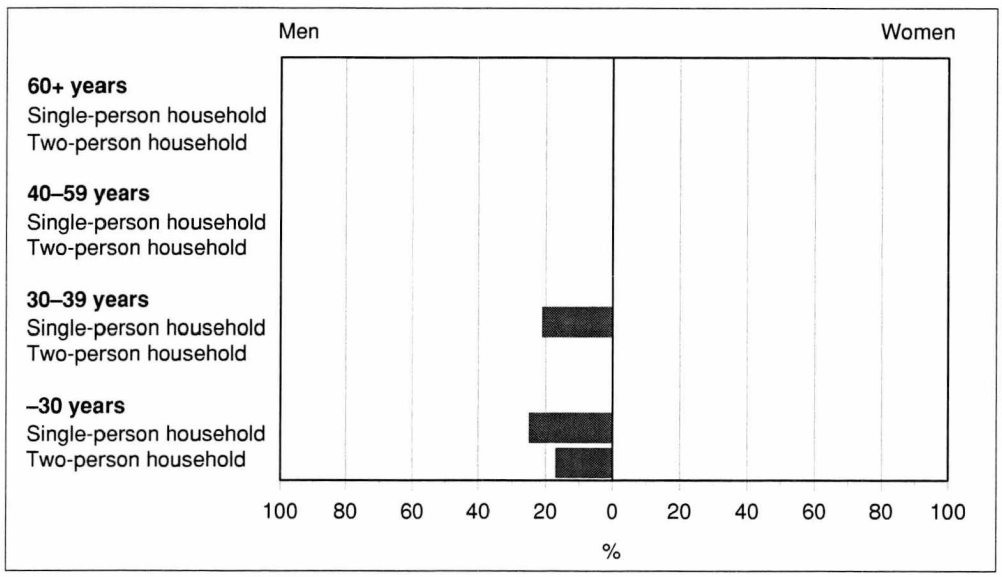
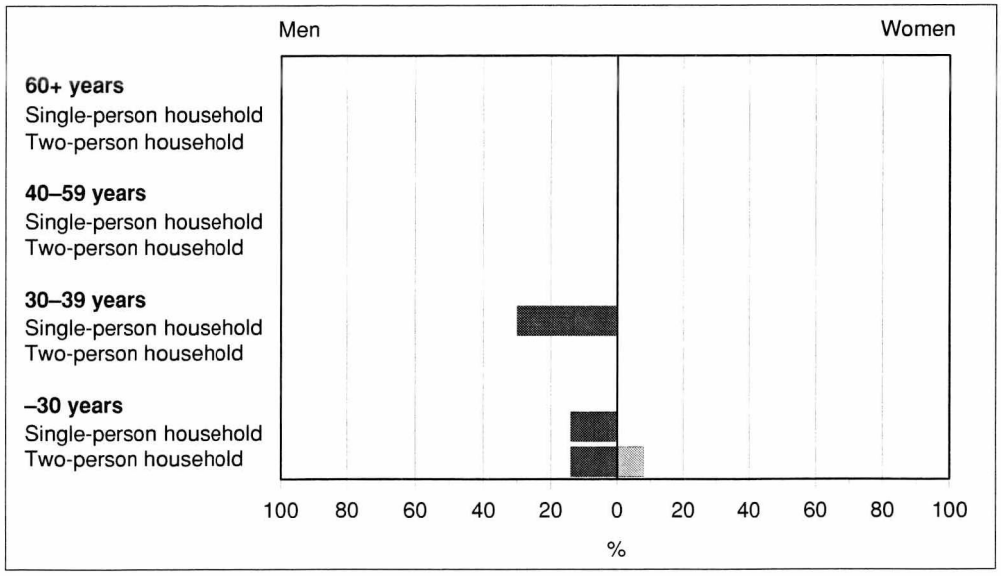


Figure 25. *The members of small households using e-mail services daily, by household size, age and sex, in % of those with at least some home computer experience*

Figure 26. *The members of small households using the Internet daily, by household size, age and sex, in % of those with at least some home computer experience*



to network connections, and even among the men in the above category only less than half were able to reach a network from home, the proportion of active users being approximately 1/5–1/4. This suggests that the home computer cannot yet be regarded as any important data network interface, except for a very small group of young men. Persons consulting data networks through library computers or facilities provided by their friends included a fairly large number of women aged under 30 years (35–51%) and some in the age group 30–39 years, though markedly less.

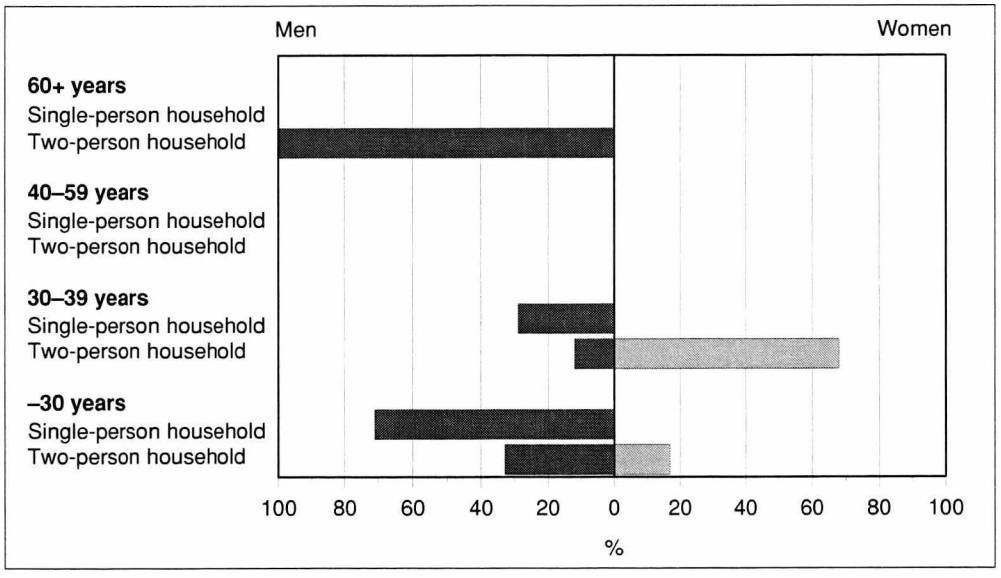
A fairly large number of the respondents with access to a CD-ROM unit at home were using it quite actively on a monthly basis. In addition to the young men, young women were using it regularly, i.e. more than 10 times a month.

The various groups will be compared in the diagrams below and in Appendix Table 7 in terms of the extent to which they use some of the most common computer functions at home. Word processing was the most regularly used function, with high weekly utilisation rates among both sexes. Quite a small number of the respondents had not used this at all. Computer games were the next most regularly used function, active use being reported by the youngest two male categories. Women aged 40–59 years also played computer games as regularly as the younger age groups. The proportion of persons not playing them at all was generally higher than the proportion of those who had not used a word processing program.

The regular use of spreadsheet programmes (Excel, Works etc) was fairly common, whereas regular use of graphics programmes was only reported by a minority of respondents. 1/5–1/3 of the men aged under 40 years and women aged under 30 years were using a home computer for regular study.

Word processing and computer games may have become a regular form of computer use for many people

Figure 27. *The members of small households using a CD-ROM unit at least 10 times / 4 weeks, by household size, age and sex, in % of those with at least some experience of home computer use*



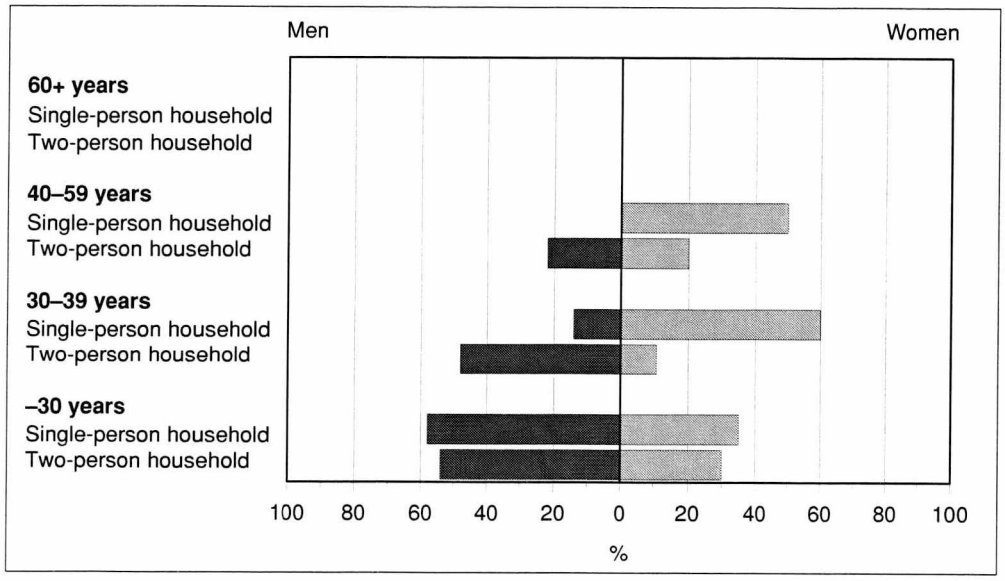


Figure 28. *The members of small households playing computer games at least weekly, by household size, age and sex, in % of those with at least some experience of home computer use*

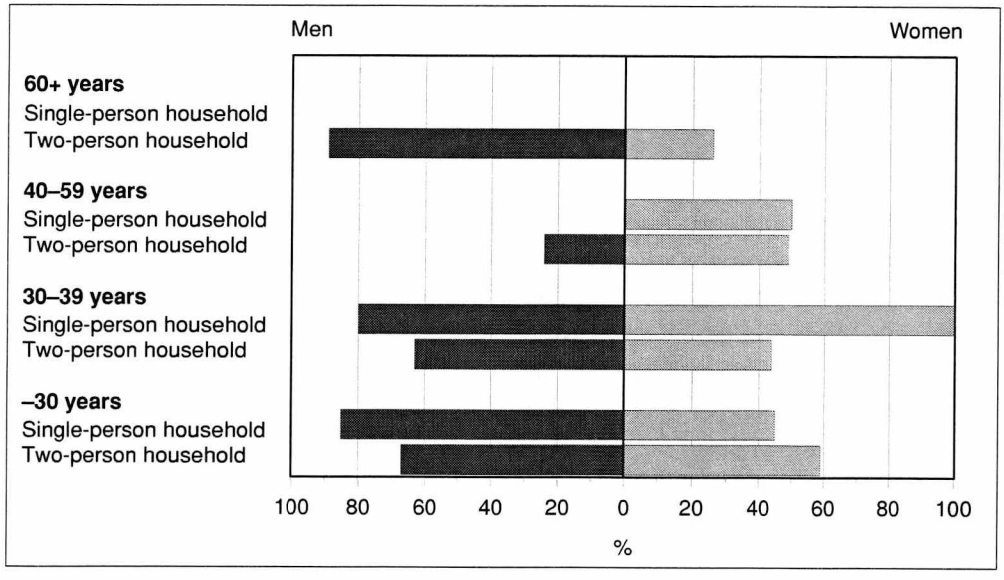


Figure 29. *The members of small households using a word processing program at least weekly, by household size, age and sex, in % of those with at least some experience of home computer use*

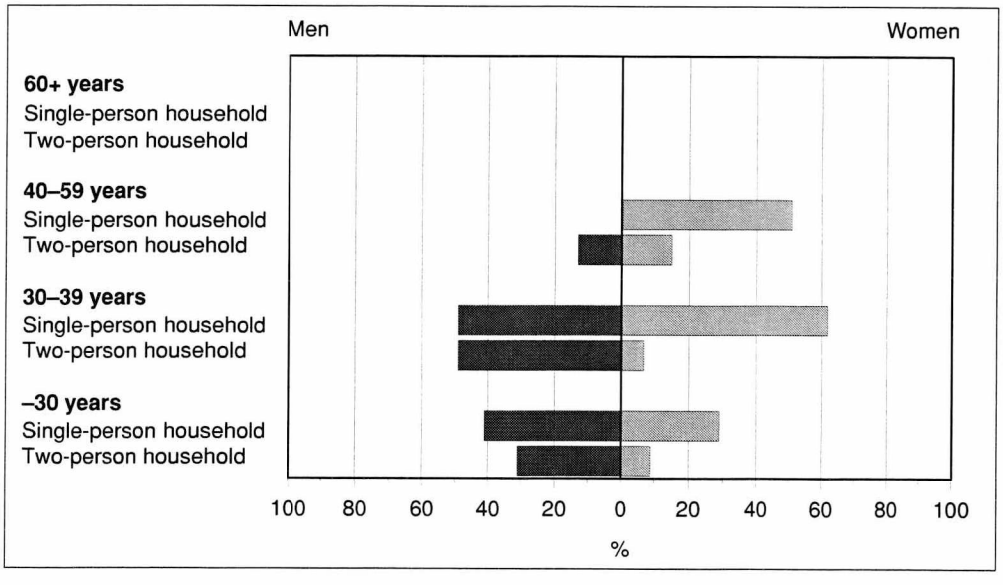
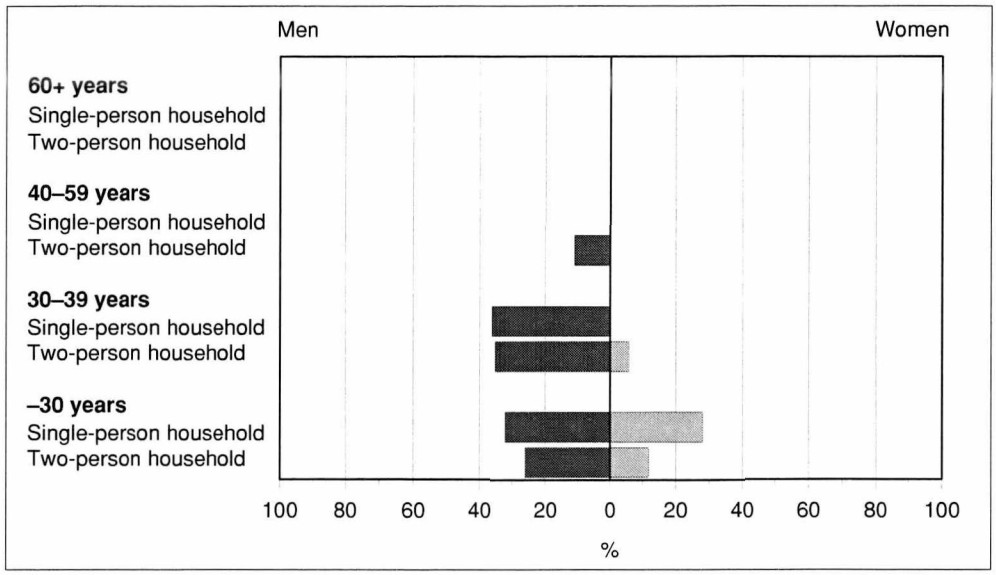


Figure 30. *The members of small households using a spreadsheet program at least weekly by household size, age and sex, in % of those with at least some experience of home computer use*

Figure 31. *The members of small households using a home computer for study purposes at least weekly, by household size, age and sex, in % of those with at least some experience of home computer use*



who are using a computer anyway in their work, studies or hobbies, and no appreciable differences were observed between the sexes in this respect. The computer usage skills of the respondents who had access to computers at work, in their studies or at home will be discussed below on the basis of their own assessments.

Competence in the use of modern information and communications technology in small households. A look at the proportion of respondents who have at least some experience of computer use points to a distribution which differs markedly from that recorded for the use of a computer at home. Of the men in single-person and two-person households, an average of 40% and 37% had been using a computer at some stage, the figures for the women being 37% and 39%, respectively. Thus the differences between the sexes were minor ones when the use of computers at work was also taken into consideration. This is analysed by age category in Fig. 32. which does not point to any differences between the sexes in the age group under 30 years. Of the women aged 30–59 years, single women in particular were engaged in work that involved the use of a computer much more often than the men, even if home computers are included. The situation was poorest among respondents aged 60 years or over, who only occasionally had access to a home computer.

Let us now examine how the respondents with computer experience perceived their skills (see Appendix Table 8). Almost all the men aged under 40 years living in small households and having used a computer reported at least fluent keyboard skills, as did the women aged 40–59 years. Some of the respondents in the oldest age group reported severe problems in using a keyboard. A mouse is not used with all computers, and there were consequently non-users in many of the groups (though some also contained persons who had not used a keyboard although they had used a computer). Even the oldest age group seemed to be more adept in the use of a mouse than a keyboard, but the result may still be influenced by the fact that not all computers have a mouse.

The comparisons in Figs. 33–36 and Appendix Table 8 apply to basic computer and network programs. A large number of people already have fairly good word processing skills, although these were not reported by all persons using a computer, the most notable exceptions being men aged over 40 years and the oldest category of women. A very large number of male computer users aged 40–59 years had not used a word processing program at all. A markedly smaller number of the respondents reported at least moderate graphics program skills, the category under 30 years being the only group where these were reported by over a half of the respondents, while over a half of those in the oldest two age groups had never used a graphics program at all.

One rather surprising finding was that moderate e-mail usage skills were at least as common as graphics program skills and that the former increased more with age. E-mail is apparently a standard tool in many workplaces, and the respondents of small households had moderate usage skills in this respect apart from the oldest age group and the men aged 40–59 years. The respondents far less often reported moderate Internet browsing skills, although the difference relative to e-mail was not very great in the youngest age group. Women aged under 30 years in particular were able to use an Internet browser better than other programs. Bearing in mind the short period for which Internet browsers have been available, particularly for use with WWW pages,

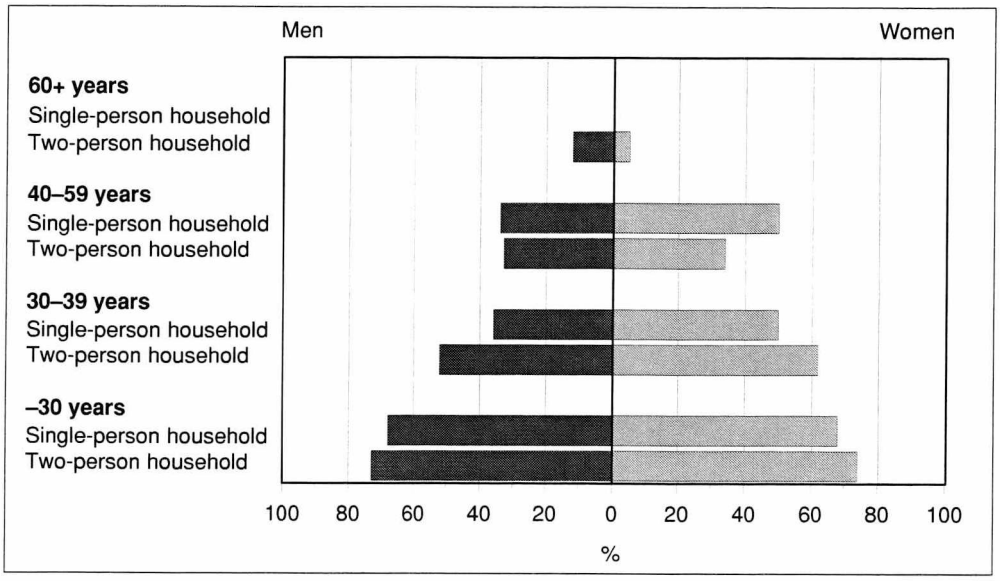


Figure 32. *Proportion of respondents living in small households with at least some experience of computer use, by household size, sex and age*

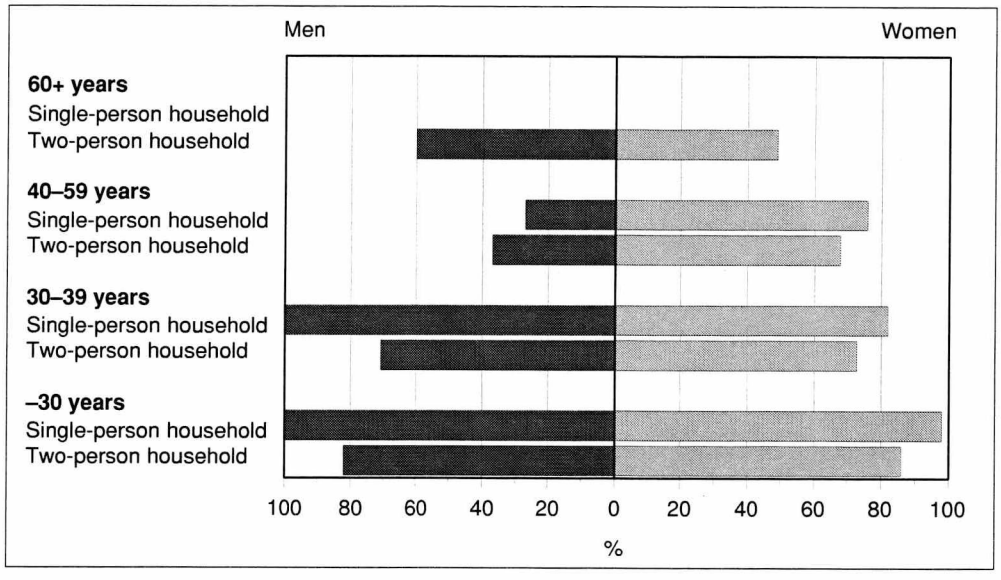


Figure 33. *Proportions of respondents living in small households with at least a moderate mastery of word processing, by household size, age and sex, in % of those with at least some experience of computer use*

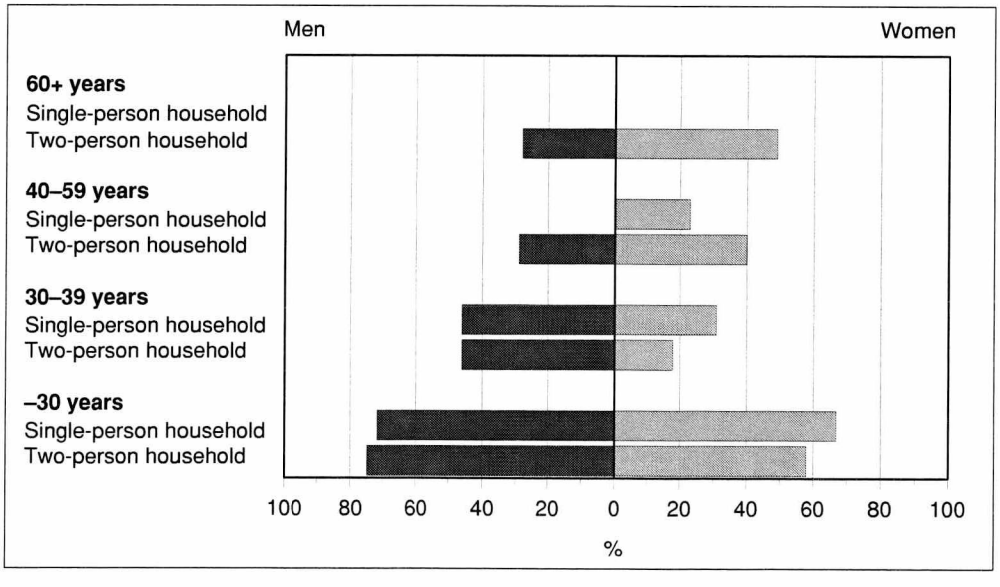


Figure 34. *Proportions of small households with at least a moderate mastery of a graphic program, by household size, age and sex, in % of those with at least some experience of computer use*

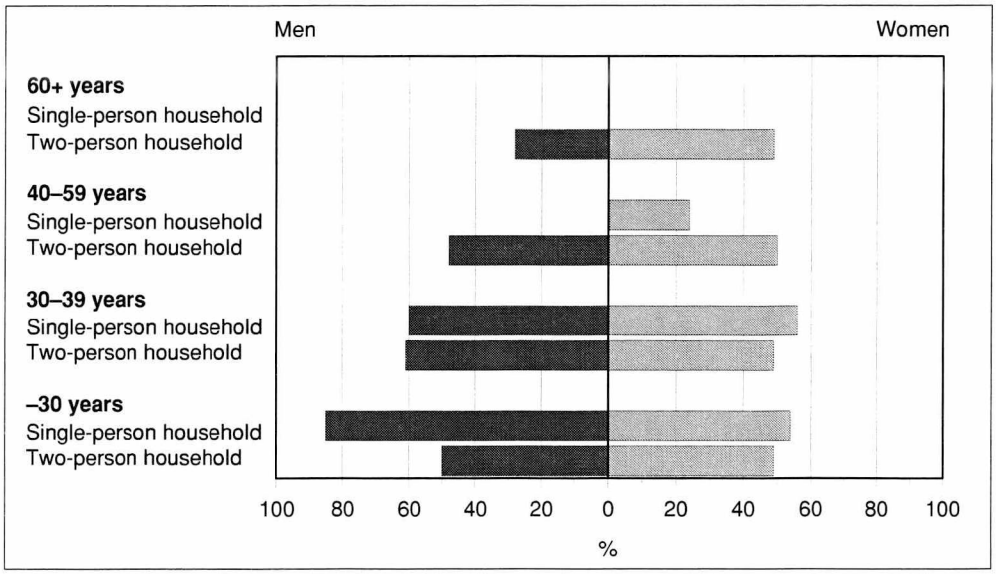


Figure 35. *Proportions of respondents in small households with at least a moderate mastery of an e-mail program, by household size, age and sex, in % of those with at least some experience of computer use*

this activity can be said to have reached small households at least fairly well.

Where respondents in small households with at least some experience of computer use reported good basic program usage skills, this cannot be said of their ability to use basic computer functions (Figs. 37–39). The men aged under 40 years were the only group in which distinct numbers were able to update programs and install them. Similar deficiencies were also observed in the respondents' ability to copy files onto discs, a very basic skill. Persons who had not done this at all were in the majority in all the groups except for men aged under 40 years. Even fewer of them reported that they were able to download programs from the Internet, some of them stating that it was not possible at all.

The ability of the respondents to master English-language programs is illustrated in Fig. 40. The majority of the youngest age group were able to do this well or partly by guessing the meanings of the words. Fairly good computer English skills were reported by the age group 30–39 years, whereas at least a half of the older respondents had major difficulties in this respect.

According to a recent publication entitled "Adult education survey 1995; Adult education in Finland", "66% of the Finns aged 18–64 years report that they have at least some kind of command of English, while 55% have a knowledge of Swedish as a foreign language, 29% of German, 8% of French and 5% of Russian... Of all foreign languages, the Finns are most fluent in English. In addition, 13% of the respondents felt that they were able to represent their employers on public occasions, for example, and 5% reported an equally good command of Swedish... When persons mastering practical situations in English are also taken into consideration, the proportion of those with at least a good command of English increases to one third of those aged 18–64

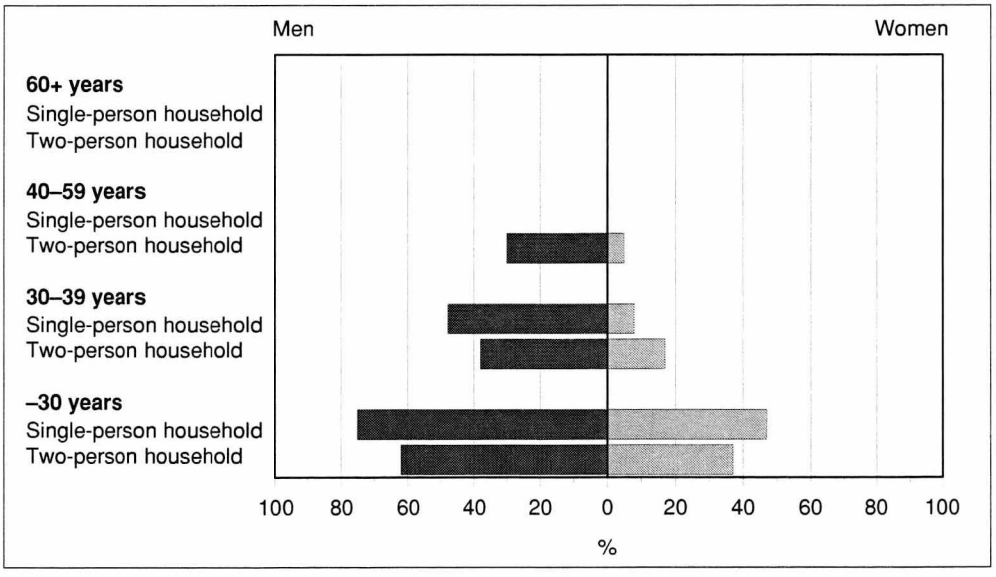


Figure 36. *Proportions of respondents in small households with at least a moderate mastery of the use of an Internet browser, by household size, age and sex, in % of those with at least some experience of computer use*

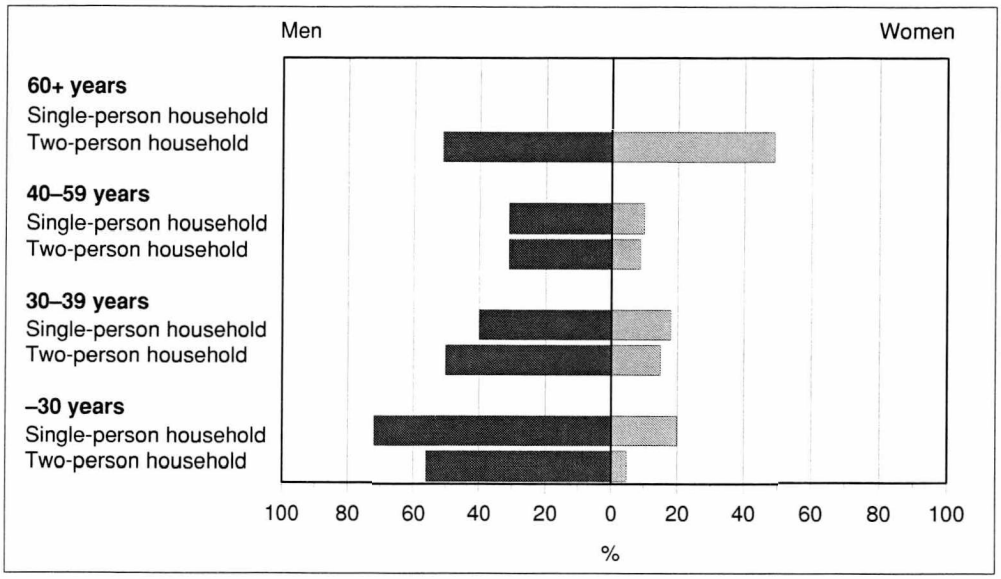


Figure 37. *Proportions of respondents in small households able to install and update programs, by household size, age and sex, in % of those with at least some experience of computer use*

years, i.e. approximately one million people... English language skills are good among young people in particular, over a half of those aged under 35 years reporting skills sufficient for at least practical situations or even official public occasions... Only 8% felt that they could not speak English at all" (Blomqvist et al., Koulutus 1997/4. Statistics Finland, 33–34)

The interview data suggest that computer skills learned at work are not very profound or extensive, the impression rather being that the respondents had learned things by rote in a narrow-minded 'conveyor belt' manner.

Adopting modern information and communications technology involves a process of absorbing new concepts, in the same way as adaptation to the use of other tools. According to innovation theories, other people contribute essentially to one's adoption of new ideas and skills, but instructors of this kind are rare in small households. The sources from which single-person and two-person households had derived their inspiration for learning about new information technology and received instruction in its is use at home and in their leisure time are indicated in Figs. 41–44.

All the groups reported that other people had played an important role in instructing them in information technology. It should be noted, though, that living in a two-person household does not seem to increase the amount of instruction received from the other household member, not even among the women, even though the situation might be assumed to be the very opposite. Learning on one's own was quite common among the men, who were also likely to apply things they had learned at work to the use of information technology in their leisure time.

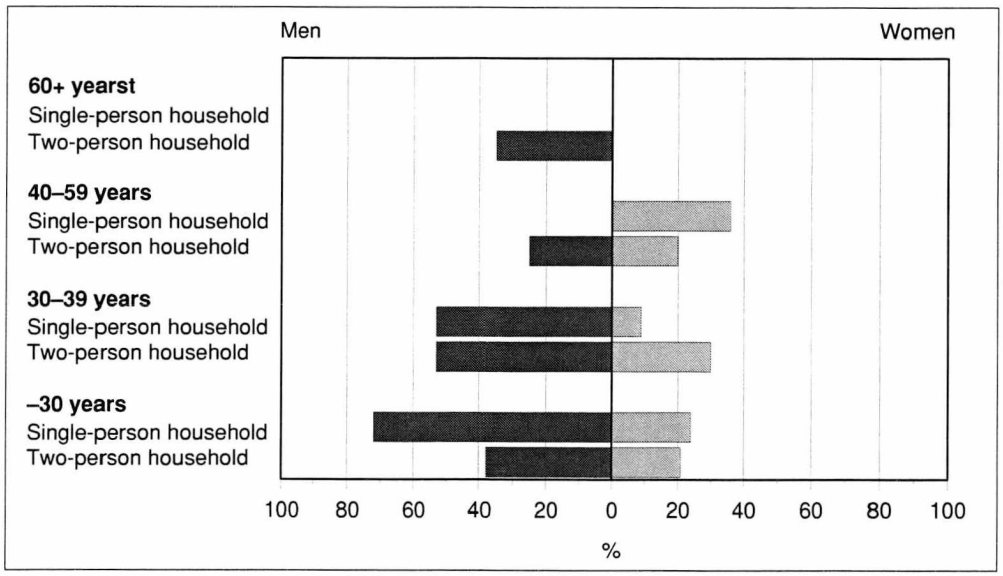


Figure 38. *Proportions of respondents in small households able to copy files onto discs at least fairly well, by household size, age and sex, in % of those with at least some experience of computer use*

Figure 39. *Proportions of respondents in small households able to copy files from the Internet at least fairly well, by household size, age and sex, in % of those with at least some experience of computer use*

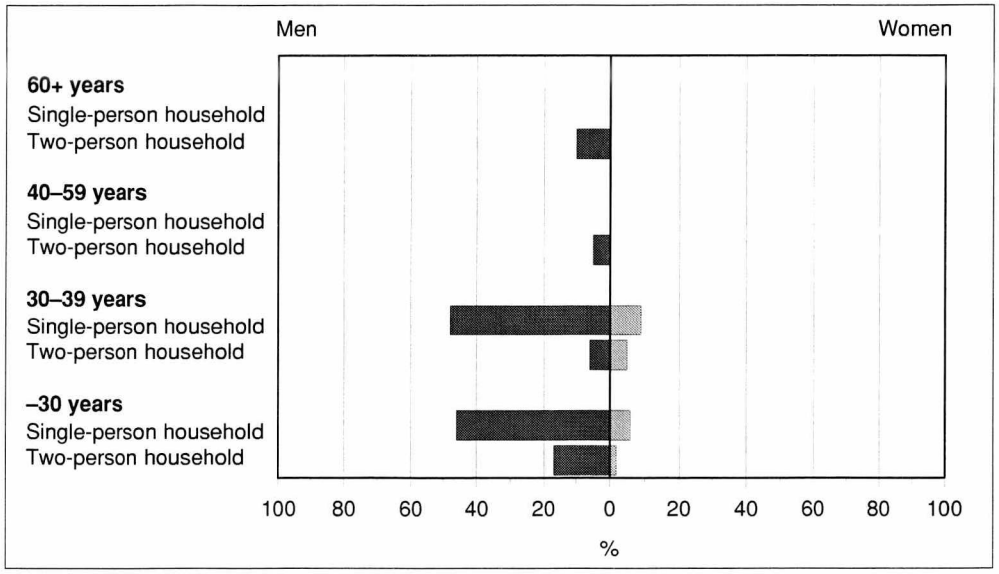


Figure 40. *Proportions of respondents in small households able to use English-language programs, at least partly by guessing word meanings, by household size, age and sex, in % of those with at least some experience of computer use*

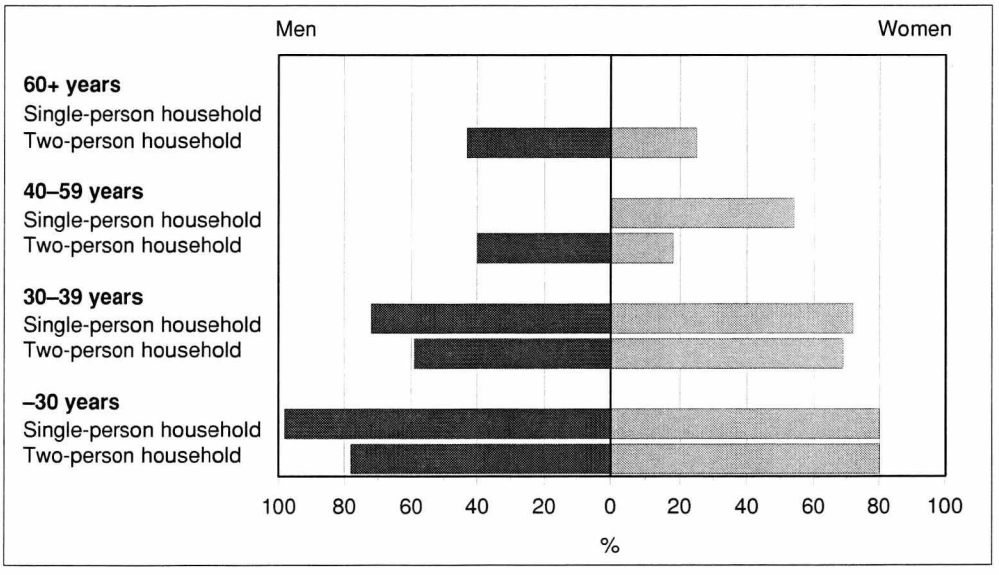
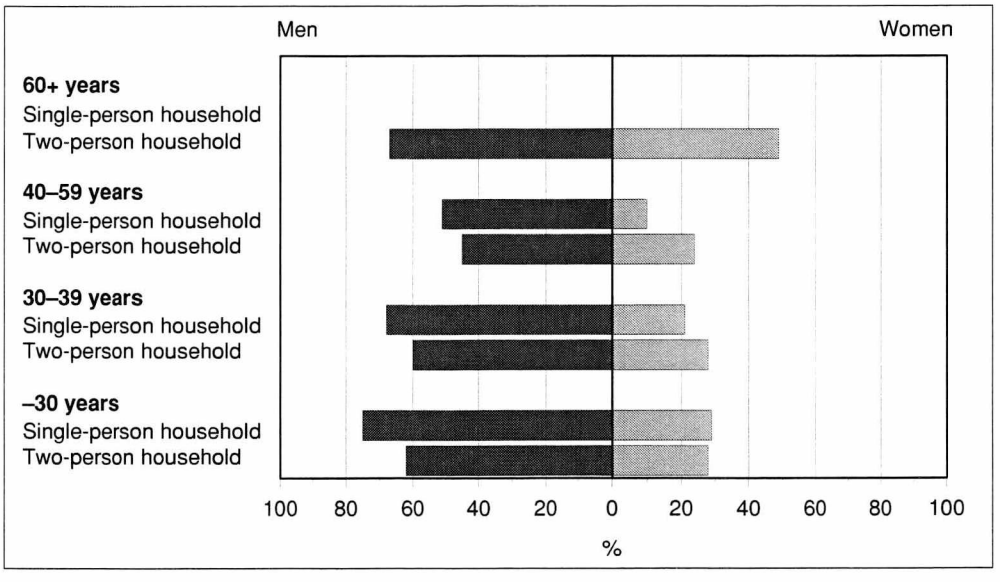


Figure 41. *Proportions of respondents in small households identifying with the statement "I have learned information technology on my own", by household size, age and sex, in % of those with at least some experience of computer use*



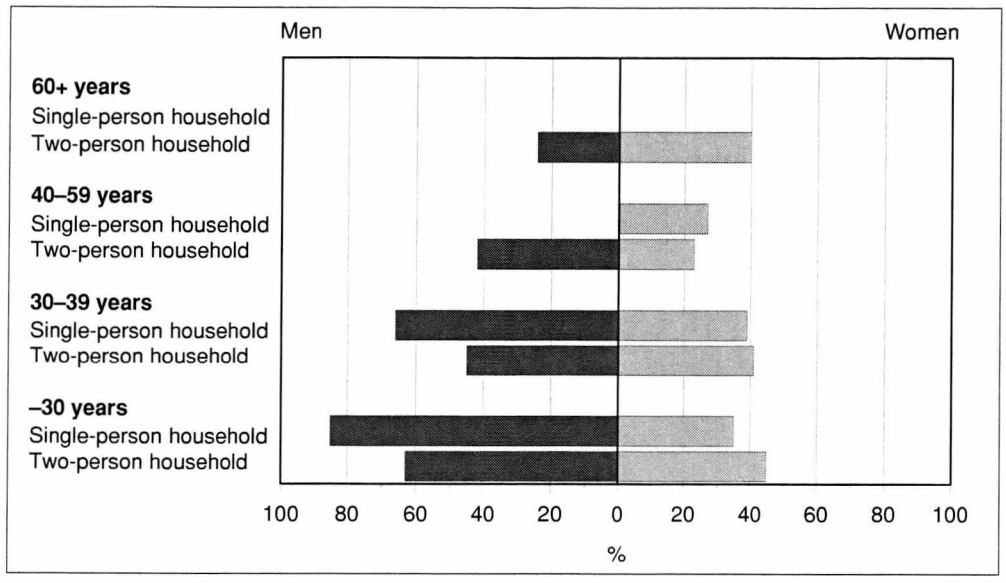


Figure 42. *Proportions of respondents in small households identifying with the statement "I have applied at home things that I have learned at my work", by household size, age and sex, in % of those with at least some experience of computer use*

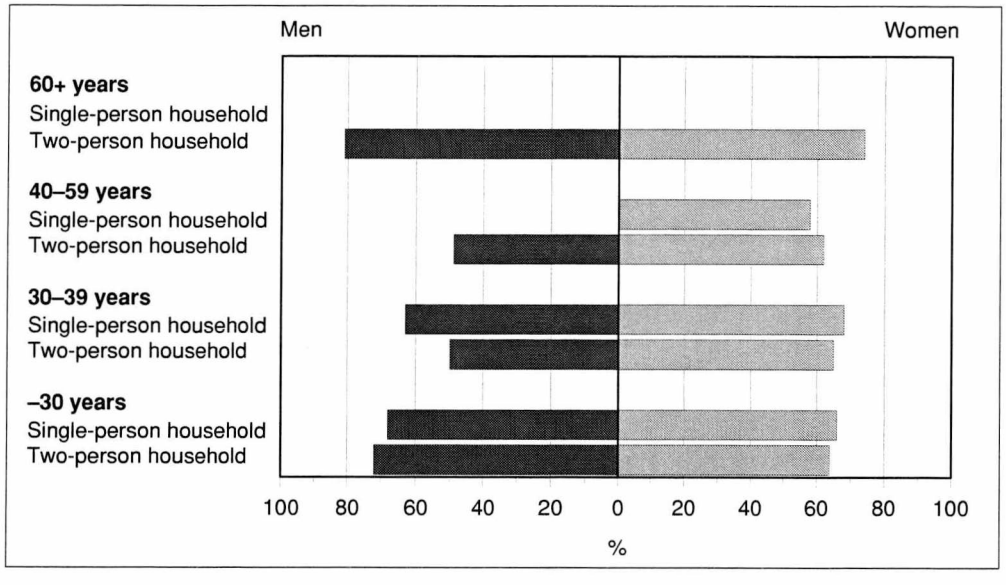


Figure 43. *Proportions of respondents in small households identifying with the statement "One or more people have instructed me in the use of new technology and services", by household size, age and sex, in % of those with at least some experience of computer use*

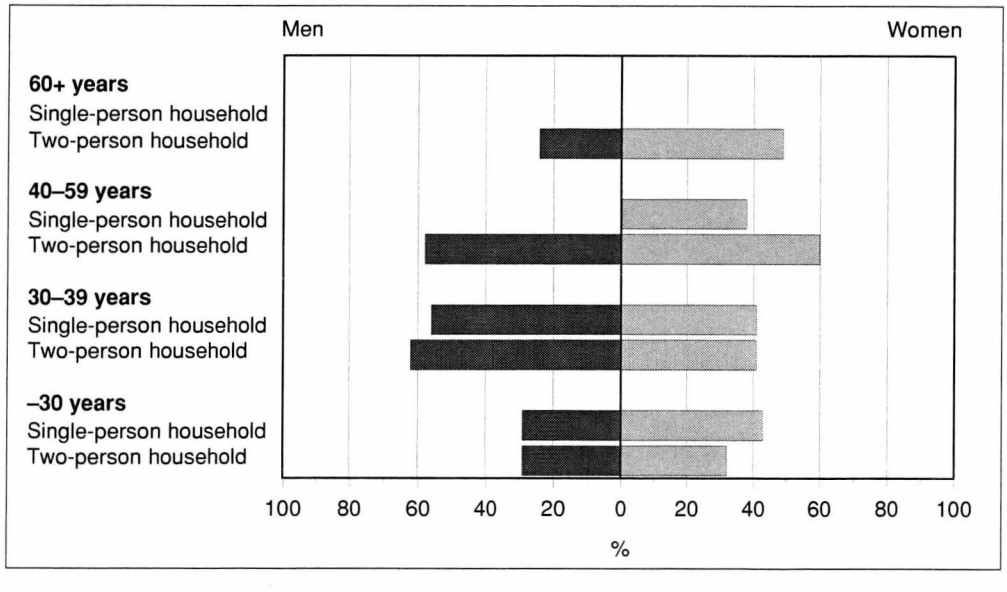


Figure 44. *Proportions of respondents in small households identifying with the statement "I have frequently attended information technology courses or corresponding events", by household size, age and sex, in % of those with at least some experience of computer use*

Table 11. *Education and gross incomes of members in small households by household size, age and sex*

	Men				Women			
	Under 30 years	30–39 years	40–59 years	60+ years	Under 30 years	30–39 years	40–59 years	60+ years
Single-person households								
% of matriculated persons	35	28	9	0	61	52	21	7
At least intermediate-level vocational qualifications	34	24	9	9	61	65	31	9
Average income category/person*	3.0	3.6	3.1	2.3	2.0	3.5	3.6	2.2
Two-person households								
% of matriculated persons	24	36	8	10	47	36	7	10
At least intermediate-level vocational qualifications	17	35	12	14	49	45	20	13
Average income category/person*	1.8	2.8	2.6	2.2	1.9	2.5	2.6	2.1

* A classified gross income variable, the average of which describes a category, not a sum in FIM. Category 1 = less than FIM 4 000/month, category 2 = FIM 4 000–6 000/month, category 3 = FIM 6 000–8 000/month.

Attitudes towards the information society in small households. The adoption of innovations can be assumed to imply a favourable attitude towards them, although it is equally justifiable to think that the use of new information and communications technology will also shape one's attitudes in a manner which will favour their use. The levels of education and income in the small households, as compared in Table 11, can be considered to describe the mental and financial resources available for adopting new information and communications technology. The households are compared in Table 12 in terms of their attitudes towards data protection and the information society, and their perceptions of the future in general.

The personal gross incomes in Table 11 describe to some extent the respondents' levels of education and their opportunities for investing in information technology. At least in the age categories under 60 years, gross income differences do not serve to explain the fall observed in the ownership and adoption of modern information technology with age. The women were markedly better educated than the men when measured both in terms of the number who had matriculated and those with at least intermediate-level vocational qualifications, except in the age-group 60 years or over. Thus higher standards of education cannot account for the differences between the sexes as regards the use of new information and communications technology, nor those

Table 12. *Attitudes of members in small households towards data protection and information technology, and perceptions of the future, by household size, age and sex, in %*

	Men				Women			
	Under 30 years	30–39 years	40–59 years	60+ years	Under 30 years	30–39 years	40–59 years	60+ years
Single-person households								
Total experiencing threats to data security	2.1	2.6	2.8	1.6	2.2	2.5	2.2	2.4
Total fearing the information society	2.1	3.1	3.5	4.1	2.7	3.8	3.6	3.6
% future-oriented	27	22	0	19	33	11	13	7
Two-person households								
Total experiencing threats to data security	2.0	3.0	2.4	2.1	2.1	2.6	2.5	2.6
Total fearing the information society	2.4	3.6	4.1	4.3	3.2	3.7	3.9	4.1
% future-oriented	34	11	15	15	29	18	11	10

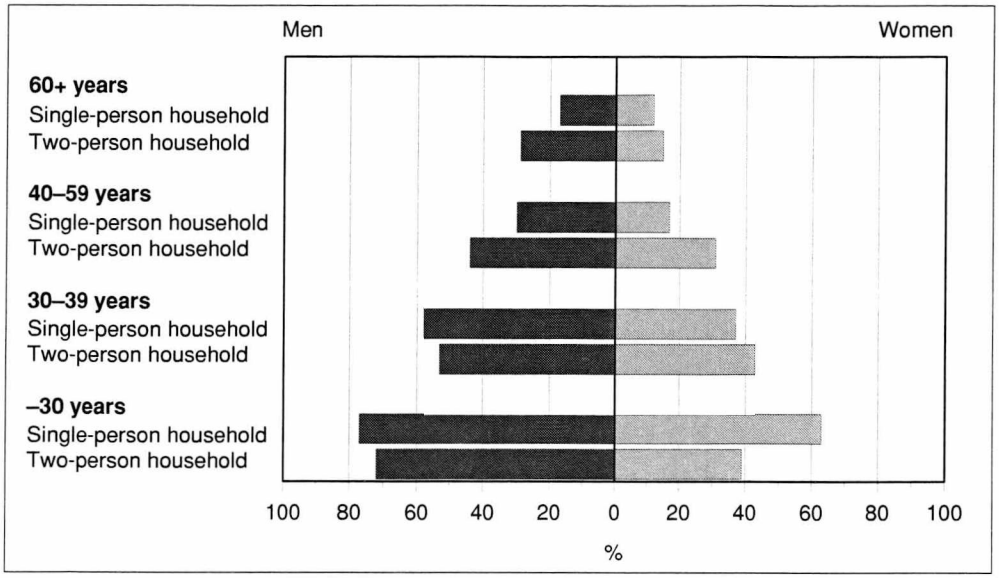


Figure 45. *Proportions of respondents in small households identifying with the statement "I am interested in new technology and purchase it as I can afford it", by household size, age and sex, in %*

observed between the groups under 30 years and 30–39 years. Higher standards of education may in turn be the reason why the women make more extensive use of information technology at work than do the men. It can be concluded from this fairly brief personal resource analysis that incomes and education do not seem to be key factors that could account for the adoption of new information and communications technology, at least in small households. The groups will be compared below in terms of their opinions on the information society.

A sum variable was drawn up on the basis of seven questions (dh28) describing the respondents' attitudes towards data protection (see Appendix 1), in order to account for the presence of any related fears. Another variable based on seven questions regarding attitudes towards the information society (gh3) (see Appendix 2) was used to describe negative attitudes. High scores on these two variables thus indicate increasing fear with regard for data security or a suspicious/frustrated attitude towards the information society. Orientation towards the future was determined on the basis of questions tu1–tu4 (see Appendix 3). The alternatives were past orientation, present orientation and mixed orientation.

As the maximum value of each sum variable is seven, the results immediately suggest that the small households were generally fairly confident about entry into the information society. The young men seldom reported any data security fears and were also least likely to be frustrated at the information society. It thus seems that their possession of the broadest experience of modern information and communications technology at least has not increased their suspicions about it. It should be noted, though, that such a positive attitude may also be attributable to their youth, as approximately one third of the young people were future-oriented in their thinking. The least data protection concerns were reported by the men aged 60 years or over, who were also the least experienced in the use of new communications and information technology. Persons aged 30–59 years were slightly more likely to recognise problems of data protection. Fears connected with the information society increased almost systematically with age, and varied more between the groups than those regarding data protection. A future-oriented attitude to life was thus not very common, nor did it decrease systematically with age.

The differences in attitude towards the information society are not great enough to provide any good explanation for the purchase and utilisation of the related equipment. Some questions of opinion, of a kind which can be considered to measure the respondents' attitudes towards new technology, will be taken up in Figs. 45–48.

Persons aged under 30 years were much more interested than the other groups in technology and its acquisition, and the majority of men aged 30–39 were also of the same opinion. The women in turn were much more interested in social issues and culture, whereas this trend increased with age among the men. Only a few of the men aged under 30 years identified with the relevant statement, and the majority of such men in all the categories regarded themselves as do-it-yourself persons. Hardly any of them felt that their purchase decisions had been influenced by the opinions of their friends or relatives. Persons of this kind were particularly numerous among the men aged under 30 years, who similarly did not consider low price or simplicity as the main criterion for purchasing an item of technological equipment, although they appreciated ease of use in the same way as did the other groups.

The above discussion of attitudes towards the information society indicates that persons under 30 years,

Figure 46. *Proportions of respondents in small households identifying with the statement "I am interested in social issues and culture more than in equipment and technology", by household size, age and sex, in %*

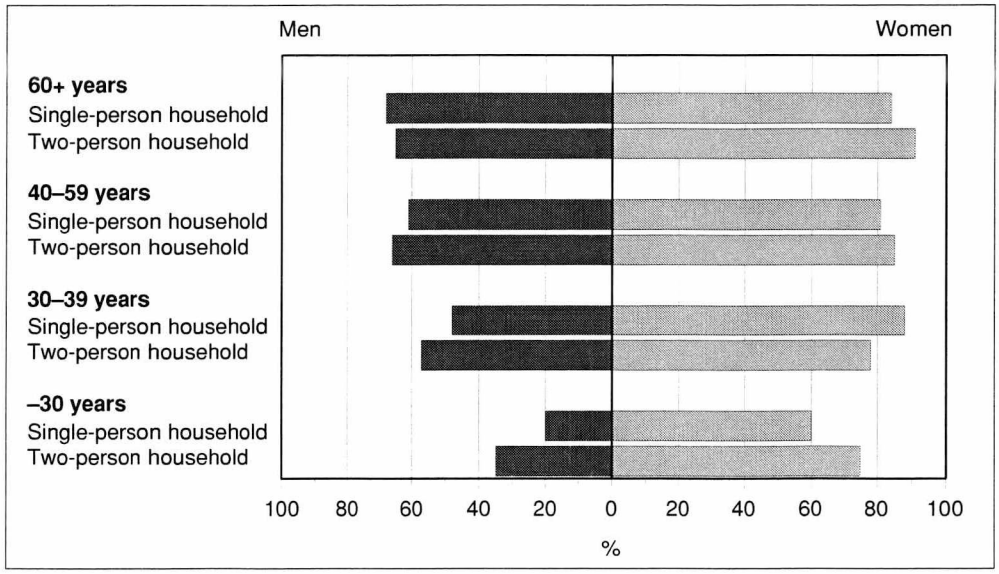


Figure 47. *Proportions of respondents in small households identifying with the statement "I am a do-it-yourself person", by household size, age and sex, in %*

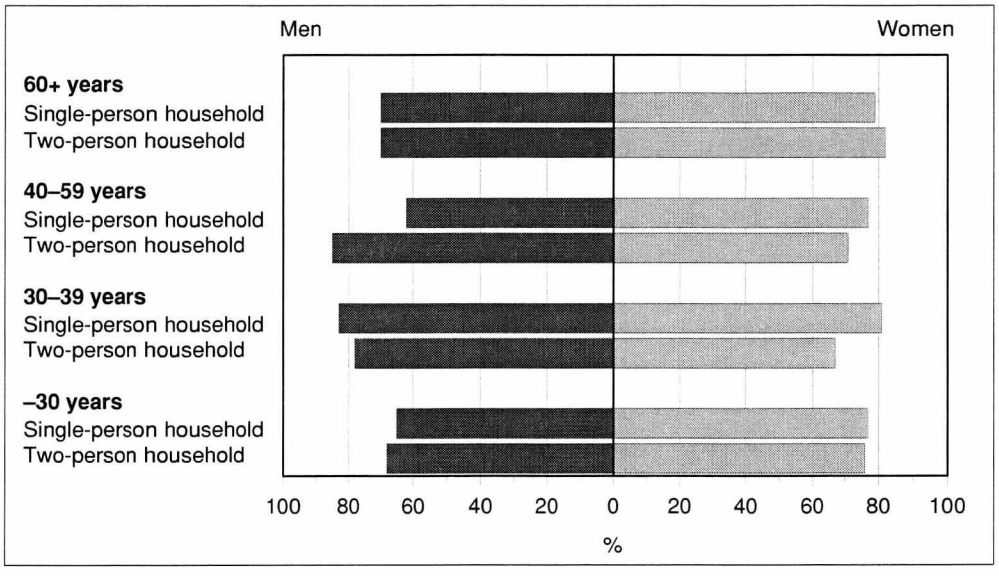
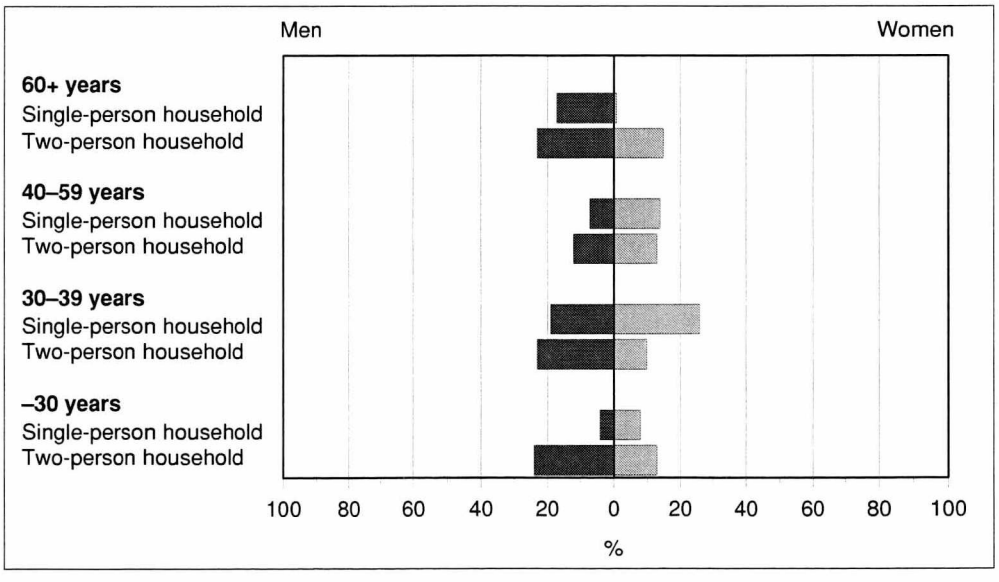


Figure 48. *Proportions of respondents in small households identifying with the statement "I only purchase new equipment when my friends and relatives already have the same", by household size, age and sex, in %*



men in particular, had far more positive attitudes towards modern technology and were slightly more often future-oriented. They were by far the largest group of all to have access to modern information and communications technology at home, though it is difficult to say anything about the directions in which the effect proceeded, i.e. whether the attitudes preceded the acquisition of the equipment or vice versa. It was probably more a matter of a self-perpetuating process of interaction. The other groups were not as interested in technology and were more likely to view the information society with some measure of fear. This can also be taken to reflect differences in cognitive capabilities.

A do-it-yourself attitude would basically seem to allow for the adoption of modern information and communications technology. In such a case, however, this technology should replace the 'tool box' and 'sewing kit' as a means for enabling the Finns to apply such technology to doing something that they consider personally important. There is no ready-made pattern for this, however, for the output gained from such technology is not to be measured in physical, everyday articles, for example, but can rather be regarded as the production of content (images, text etc.) which has traditionally been the province of professionals using expensive equipment. The fact that the Finns do not regard themselves as copying others may partly account for the fairly rapid spread of new technology, at least in small households.

4.4. Modern information and communications technology in families

The relation of families to modern information and communications technology will be analysed here in the same manner that of single-person and two-person households. The number of families was small as compared with the latter, so that they will not be discussed here by size but rather by the age of their children. Earlier research has indicated that the presence of teenagers in the family increases the number of modern information and communications devices acquired by households (On the road to the Finnish information society, Chapter 8.1).

Families (i.e. households comprising at least 3 persons) constitute some 33% of all households in Finland. These were divided into 6 groups as shown in Table 13, the first five of these covering households with 3–5 persons.

Only a small number of replies were obtained from households of 6 persons or more, so that the results regarding their equipment possessions should be approached with caution. Similar the numbers of replies received from adult households (all persons aged 20 years or over) and households in which all the children were under 7 years in the equipment section were fairly small.

A half of the families were living in rural areas or small built-up areas, usually private houses. A larger proportion of households in which all the members were at least 20 years of age than of the other families were living in rural areas and private houses (Table 14).

Earlier research thus suggests that many of the households in category 4 should have access to home computers, mobile phones and other appliances. This will be discussed below by first comparing the basic equipment resources and then analysing the forms of equipment by type of family.

Almost all the families examined here had access to a television, video recorder, car and fixed phone (Fig. 49), and were thus as well equipped as were the single men under 30 and the two-person households in the same age category. Families more often had a car

Table 13. *Replies from households with three persons or more by household type, and the estimated numbers of such households in Finland*

	No. of households interviewed	No. of such households in Finland
All children aged under 7 years	79	144 500
At least children aged 6–12 years, possibly also 0–6 years	106	159 300
At least children aged 13–19 years, possibly also younger	110	117 900
Only children aged 13–19 years	133	173 700
Only persons aged over 20 years	62	136 000
Household of 6 persons or more	35	46 400
Total	525	777 600

Table 14. *Proportions of at least three-person households living in an apartment, a private house, and a rural area, by household type, in %*

	Age of children in households of 3–5 persons or household size*					
	Only children under 7 years	Children 7–12 years	Children 13–19- years	Only children 13–19 years	All persons over 20 years	Household of 6+ persons
Living in an apartment	18	22	20	21	7	40
Living in a private house	52	63	58	65	86	57
Living in a rural area or small built-up area	49	50	45	50	64	44

* Classification presented in detail in Table 13.

whereas young single persons were far more likely to have a mobile phone. The situation in the large families raises the question of whether membership of the Laestadian sect will lead to marginalisation from the computer sphere in the future, bearing in mind that only 80% of the large households examined here had a television.

A half of the households with schoolchildren had a computer, but only one fifth had a modem. One rather surprising finding was that mobile phones were most common in families with children under school age, where the parents are often young.

All in all, the differences observed between the families were markedly smaller than those between the single-person and two-person households of different ages. The number of computers was essentially smaller only in the large families and the ones composed of adults.

'Old technology appliances' will be discussed below in terms of the extent to which families have adopted accessories to these, devices of a kind which call for more complex usage skills and provide access to 'new services' (Fig. 50). The TV, its remote controller, teletext facilities and a video recorder together constitute a chain which requires a variety of skills to use and which allows the user to break free of predetermined timetables. This is particularly true of video recordings and teletext facilities, the active habitual use of which may mark a step towards freeing oneself from time restrictions, which is generally considered an essential feature and advantage of information networks.

A very large number of households with children aged over 12 years had at least two TV sets, but only about a half of the large families and ones with children aged under 7 years. After all, having more than one TV facilitates programme selection within the family now that a number of channels are available. It can also be considered to accustom users to making such choices. Two video recorders was not nearly such a common situation as two TV sets, as is quite natural, since the same recorder can be connected to more than one TV set. Two video recorders would of course allow for watching TV and recording at the same time. Basically, this equipment allows for an almost equally extensive choice of programmes, at least in households with access to chargeable channels, as do video-on-demand services, though with slightly greater effort in that the people have to purchase the tapes themselves and time the recorder. It should be noted, though, that even this is easier today, thanks to the introduction of show-view technology. From this point of view, video-on-demand services often have to compete with the price of an additional video recorder in towns which often also offer access to cable or satellite channels. It should be noted that having to purchase a satellite antenna increases the cost of competing services in the case of private houses. Families were more likely to make regular use of a video recorder than small households. It may be that children and young people are more prone to collect a 'video library' of their favourite programmes than are adults.

Compared with two-person households, as many as 1/3 of the families lacked teletext facilities, their TV sets apparently being quite old. Remembering that families have many potential teletext users, teletext extensions were indeed not available to many. This suggests that at least not all family members have become accustomed to using these facilities routinely. A video camera was slightly more common in families than in two-person households, particularly in those with small children. It may be that the opportunity of filming the children as they grow up from babyhood onwards is a better incentive for purchasing a video camera than are events connected with the lives of older children. Satellite or cable TV channels were almost equally as common in families as in two-person households, though quite many of the families living in residential blocks had not joined a cable

Figure 49. *Equipment resources of households of at least three persons, by household type, in %*

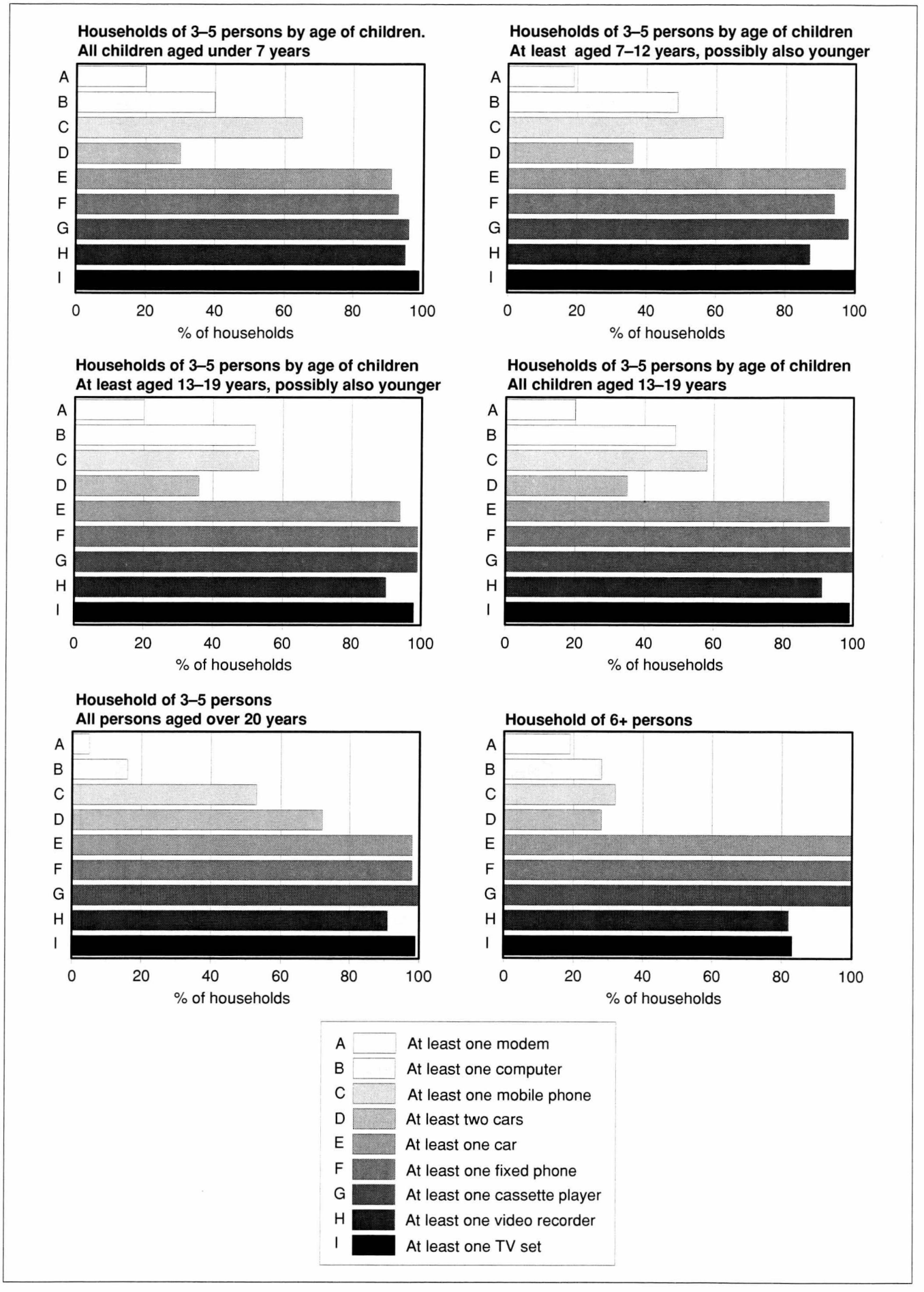
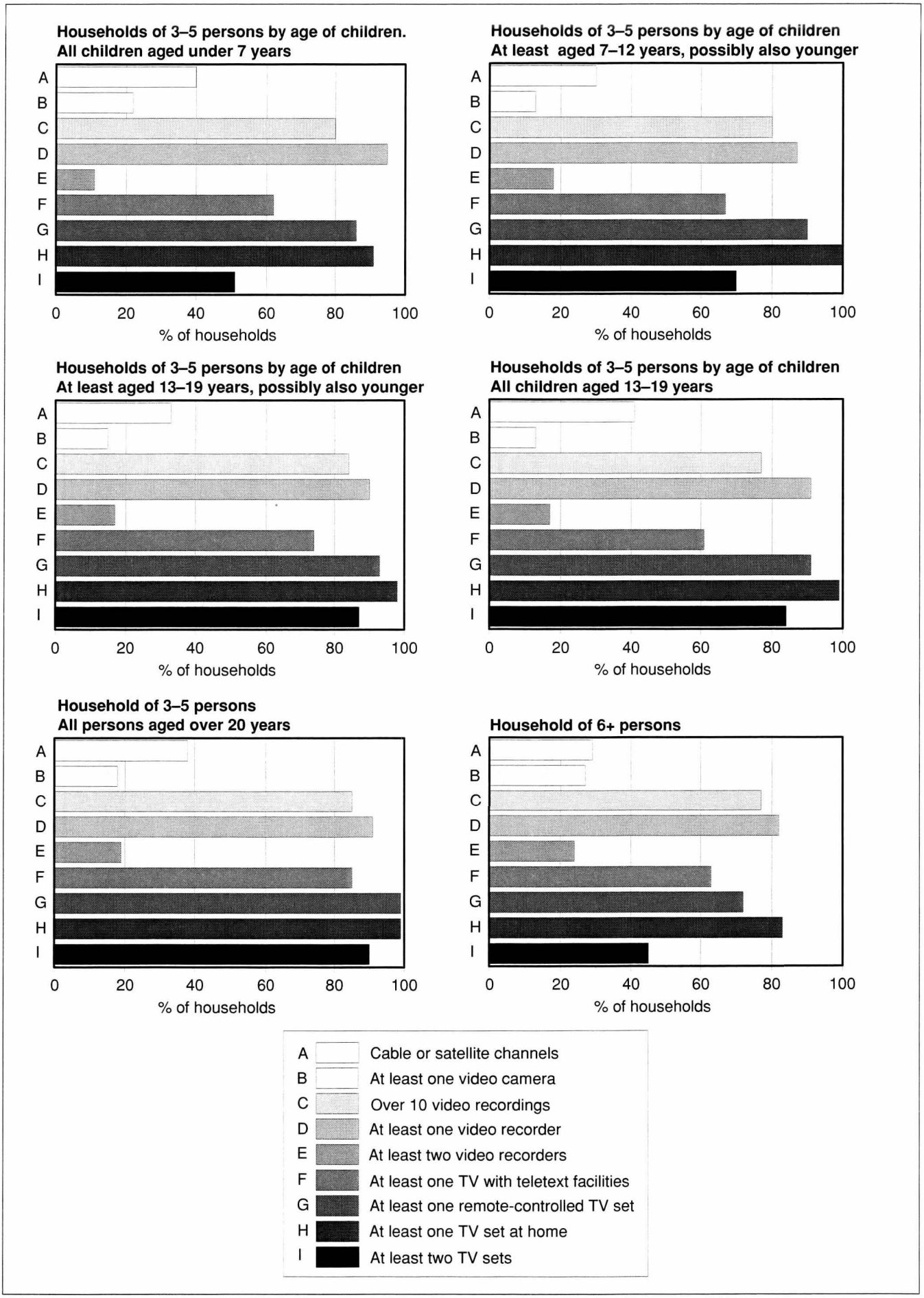


Figure 50. *A television and its accessories in households comprising at least three persons, by household type, in %*



satellite system. Can this be taken as a sign of 'protecting' the children against an excessive choice of programmes?

It can be concluded that in terms of the above traditional TV technology, the equipment that the families possessed and their access to services were at least no better than in the case of two-person households or single young men.

Another chain of equipment which can be used to explore the technology which 'leads the way' to modern information and communications technology consists of devices intended for listening to recordings, the newest forms of which allow the user to listen to music and radio programmes regardless of time and place. As young people are known to be keen music enthusiasts, equipment of this kind can be assumed to be quite common in families (Fig. 51).

Almost all the families had a cassette player, but cd players were not as common as record players in any family category, nor were they quite as common as in small households aged under 30 years. The walkman, which has been available much longer than the portable cd player, was only common in families with children aged 13–19 years. Even among the households with children of primary school age, over one third did not have access to a walkman, whereas remote-controlled stereo units were quite common. Some 1/4 of the families had synthesizers, which is much more than in single-person and two-person households. This increase may again be attributable to the children's interest in music.

The use of equipment for listening to music and the radio regardless of time and place was not particularly common in families either, so that it cannot be regarded as contributing to their use of the corresponding data network services to any appreciable extent. It may be, however, that using the Internet as a source of music videos or other forms of music may attract young music enthusiasts to enter networks.

The frequency of newspapers and magazines, books and photography, media which may reflect a degree of active leisure-time orientation and capabilities for seeking similar 'services' by means of new technologies, was high in families and the differences between the groups were small, apart from subscribing to a daily newspaper, which was markedly less common in families with children aged under 13 years, as indicated in Fig. 52. Although a slide projector was as common as a video camera, families with children could be assumed to have better resources for motion picture recording than small households, which should contribute at least in part to their ability to adopt modern information technology.

Almost all families still rely on a fixed phone, though the frequency of these was low in the two family categories with the youngest children, as indicated in Fig. 53. These groups were also more likely to have a mobile phone and a cordless fixed phone. Families with children under school age also more often had an answering machine. Voice frequency phones were more common in families, creating good opportunities for using frequency-based telephone services. Families had also acquired mobile phones for work purposes far more often, as shown in Table 15. The expansion of technology through places of work was exceptionally clear in this respect. Families representing very many types were planning to purchase a mobile phone, particularly those with teenagers. Nevertheless, a surprisingly large number of families only had one telephone, although having more than one would offer greater privacy to individuals. Of the families with children aged 13–19 years, as many as 3/4 already had at least two telephones, which may be attributable to the need for teenage children to speak on the phone undisturbed.

Computer and their peripherals and network connections occupy a prominent position when assessing reading skills in the information society, for instance. The extent to which the computer selects the families which purchase and use one is illustrated in Fig. 54. A half of the families in most of the categories reported that they already had a home computer, although this was slightly less common in households with children under school age and even more so in households with over 6 persons or with no children aged under 20 years. Of the single-person and two-person households, men and couples aged under 30 years were almost equally likely to have a computer as were families with children of school age.

The types of household with a home computer are indicated in Table 17. More than a half of these households were families though these made up only 1/3 of all households. Of the families with a computer, over 10% already had a second computer, and one in four of the families with children aged 13–19 years had at least two computers. The computer had most recently been acquired in the households with children aged under 13 years, approximately one fourth of which had purchased it during the previous year. The number of such new machines was markedly smaller in the other family categories. This may be taken to suggest that computers are spreading in particular to families with small children and to two-person households aged 30–64 years. Computer purchase plans were much more often reported by respondents with large families (43%). Persons of this

Figure 51. *Equipment for listening to recorded music in households comprising at least 3 persons, by household type, in %*

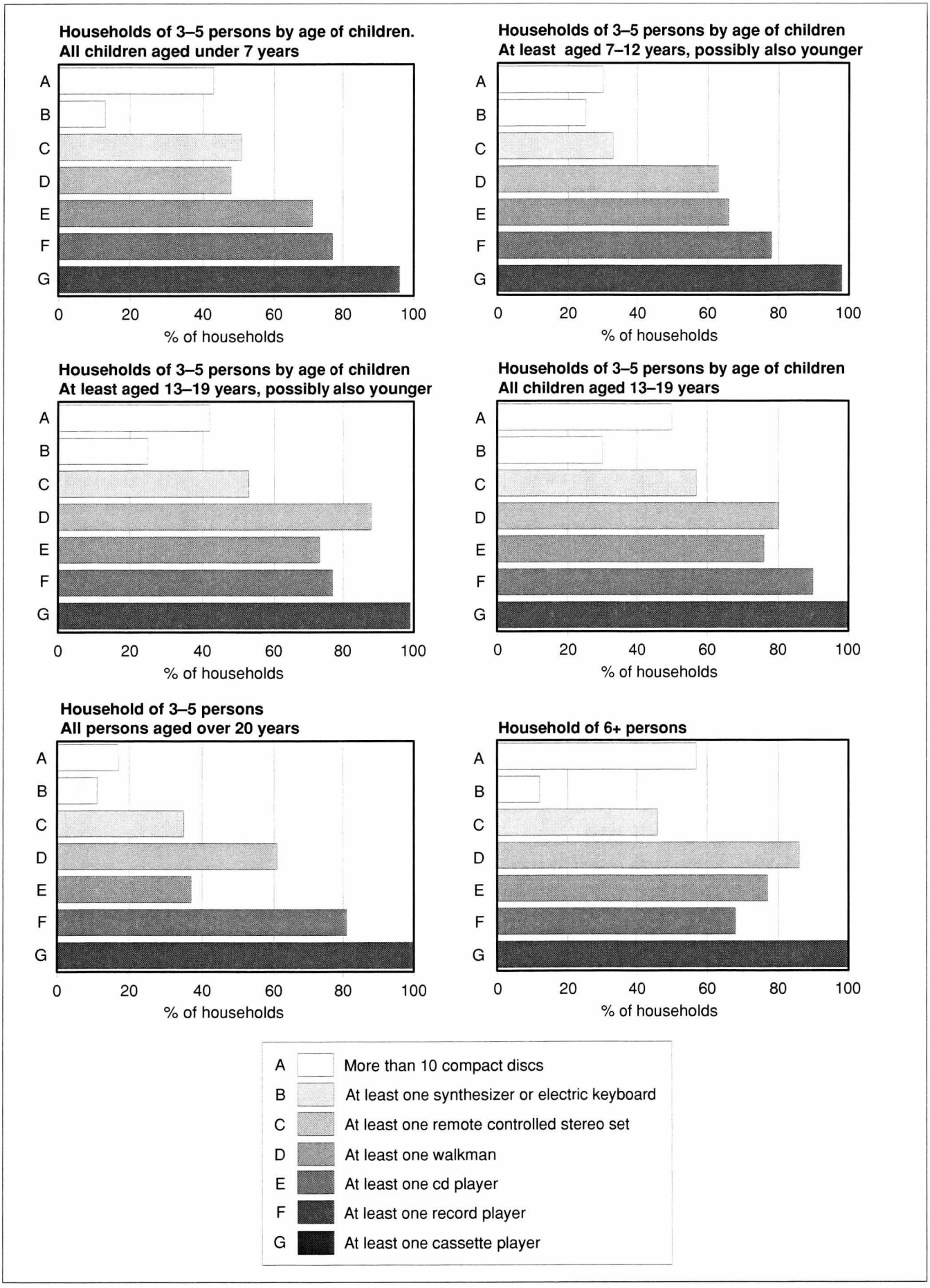


Figure 52. *Newspapers and magazines, books and photography in households comprising at least 3 persons, by household type, in %*

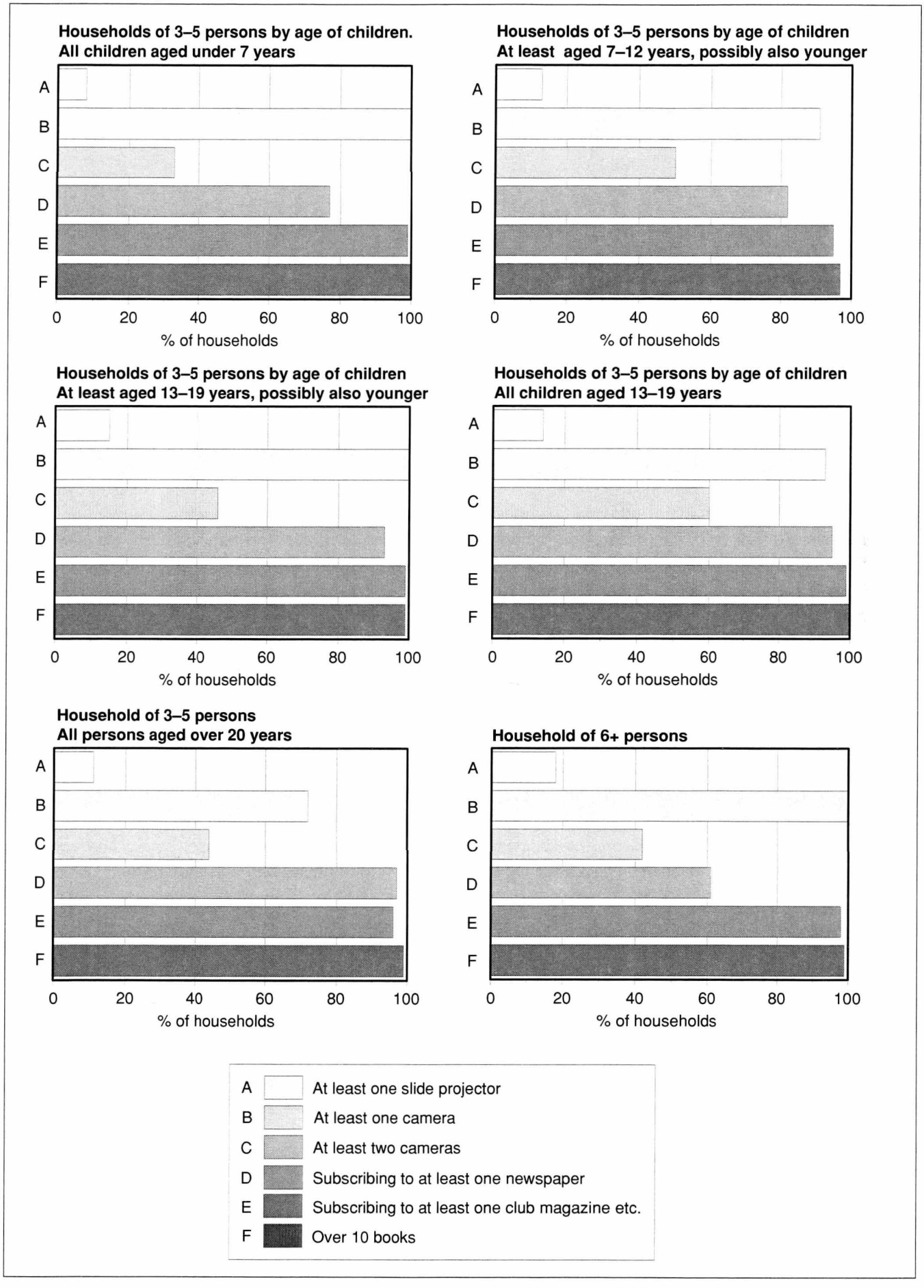


Table 15. *Proportion of company mobile phones and plans to purchase a mobile phone in households comprising at least three persons, by household type, in %.*

	Age of children in households of 3–5 persons or household size*					
	Only children under 7 years	Children 7–12 years	Children 13–19- years	Only children 13–19 years	All persons over 20 years	Household of 6+ persons
% of first company mobile phones for work purposes, %	42	39	47	35	13	23
% of second company mobile phones for work purposes, %	58	68	67	42	24	32
Planning to purchase a mobile one	29	32	49	38	21	16

* Classification presented in more detail in Table 13.

kind were also more numerous in families with children aged 13–19 years which did not have a computer than in ones with children under 13 years. It thus seems that the computer will become common in all types of family in future. Families also reported plans to purchase one more often than did small households (Table 16).

Families seldom reported having laptop computers, whereas over 10% of them had access to a computer used for work purposes or had purchased one for a family member's own business. The latter was true for almost a half of the households with over 6 persons.

Not all the families had access to a printer, so that only one third of them were able to use the computer as a typewriter and to print something out on paper. Printers were equally common in small households (60–80%).

Families far more often had access to a CD-ROM unit at home than did small households. Since a half of the units had only been purchased during the previous year, the families were evidently still only practising with their use. On the other hand, an even greater proportion of the CD-ROM units in small households were of this age.

Approximately 20% of the households with a computer had access to a modem, a large number of which had been purchased during the previous year. Only a few of the computer households lacking network connections reported plans to purchase a modem, the figure being greatest for families with children under school age and those of at least six persons. Families do not seem to stand out appreciably from two-person households aged under 50 years in this respect. All in all, the computer and accessory resources of single parent households resembled those of households comprising at least six persons.

The frequency of computers in families seems to be dependent on the presence of children of school age, the number of its peripherals increasing with the age of children. 'Marginalised' families, i.e. those who have not purchased new information and communications appliances, were typically those comprising grown-up children (often quite old) and their parents, which were

Table 16. *Households planning to purchase a home computer and modem and proportions of CD-ROM units and modems purchased within the last year in households of at least three persons, by household type, in %*

	Age of children in households of 3–5 persons or household size*					
	Only children under 7 years	Children 7–12 years	Children 13–19- years	Only children 13–19 years	All persons over 20 years	Household of 6+ persons
Planning to purchase a computer	26	27	33	31	17	43
Planning to purchase a modem, % of households with a computer	46	36	25	32	10	52
% of CD-ROMs purchased within the last year, %	46	68	52	47	29	57
% of modems purchased within the last year, %	34	43	49	33	30	29

* Classification presented in more detail in Table 13.

Figure 53. *Telephones and accessories in households comprising at least three persons, by household type, in %*

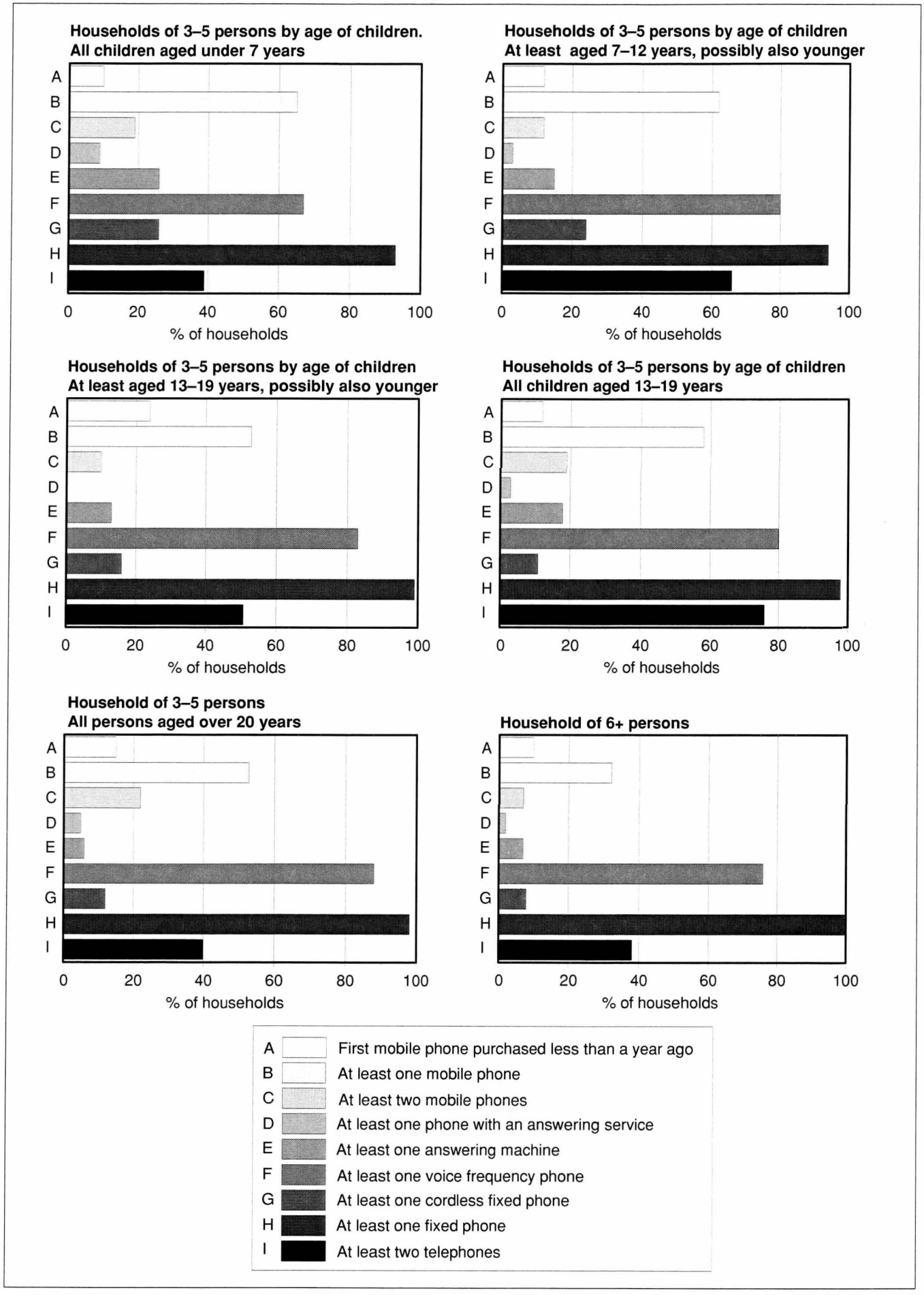
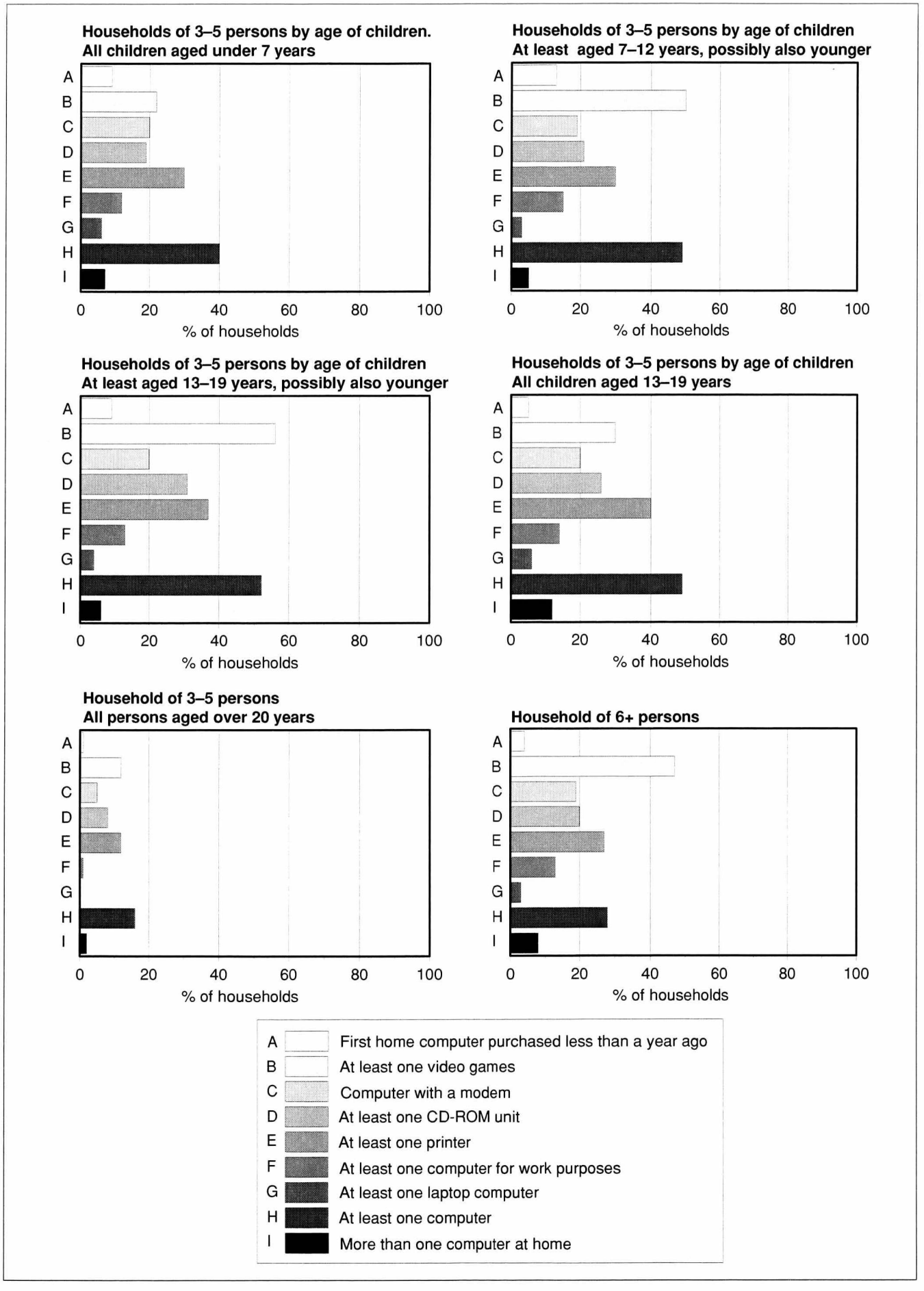


Figure 54. *Home computers and peripherals in households comprising at least three persons, by household type, in %*



	Households with a home computer	
	Number	Percentage
Single-person households, male	90 200	16
Single-person households, female	27 100	5
Two-person households aged over 50 years	74 400	13
Other two-person households	53 400	10
Families with children aged 13–19 years	146 400	26
Other families	170 600	30
Total	562 100	100

Table 17. *Number of households with a home computer at the time of the interview, by household type*

considerably less likely to have a computer. Quite a small number of the large households had a computer, though their purchase plans may increase the number very rapidly in the next few years.

4.5 Use of modern information and communications technology in families and related skills and experiences

This section discusses three questions: How extensive was the use of the various items of information and communications technology among the family respondents? What were their experiences with this technology? And how did they perceive their usage skills? The aim is to provide a general picture of the way in which these three aspects are distributed in families. Where the focus above was on the households' equipment, i.e. the spread of the information society and its progress were seen as 'a matter of circumstances', the issue will be approached here with respect to the other preconditions listed in Table 1 (p.). Although the account given here cannot be very comprehensive, it does provide some information on the lack of skills and knowledge, unwillingness and partly age-related incapability admitted by the respondents. Although the questionnaire items only allowed for approximate operationalisation of these dimensions, they nevertheless offer a perspective from which to examine the tables and other empirical data.

The material here will be classified according to age and sex, variables which were also used in the case of single-person and two-person households. It should be noted that the use of financial, functional and time resources in families requires more conciliation and joint decision-making between the members, e.g. as to what to purchase and use, than it does in small households.

A large number of variables were cross-tabulated for analysis by sex and age. As the interviews were extended to all persons aged over 10 years who were living in the target person's household and agreed to be interviewed, there were some household members aged over 74 years. Similarly, not all family members could be interviewed or the households may have contained persons aged under 10 years who were not interviewed personally. Thus interviews were conducted with a total of 786 males and 784 females living in families, i.e. 1570 persons. They were fairly evenly distributed by age category. Classification of the families by age and sex involves a smaller sample-induced contin-

Table 18. *Distribution of family respondents by age and sex, and the estimated size of the corresponding group at the national level*

	10–14 years	15–19 years	20–29 years	30–39 years	40–49 years	50+ years
Men						
Number of respondents	150	115	75	145	200	101
Total number in the country	153 030	130 220	107 629	255 634	249 124	126 082
Women						
Number of respondents	143	118	66	167	222	68
Total number in the country	144 972	127 509	126 042	289 460	255 289	86 257

gency element than does that of small households, thanks to the larger number of observations. The distributions recorded for the family respondents can thus be generalised better to apply to the corresponding population group at the national level.

Use of the phone in leisure time at home. Over a half of the family respondents reported less than 10 calls received at home or made from home per week, as was also the case for single-person and two-person households. The proportion of persons using the phone so infrequently was smallest among those aged 20–29 years, i.e. less than 40%, and greatest among those aged over 50 years, i.e. over 65%. Telephone contacts were most frequent in the age category 20–29 years, where 25–30% reported over 20 calls a week, and not among children and young people aged 10–19 years. The number of such active telephone users decreases by approximately 10% by the time the oldest category is reached. Most of the details on the distribution of telephone use in families are given in Appendix Tables 12–14.

It was only in the age group under 20 years that at least a half of all leisure-time calls or ones received at home or made from home involved the use of a mobile phone, the number of incoming calls being slightly smaller than that of outgoing ones. 45% of the persons aged 20–29 years reported that they spoke on a mobile phone for as long they did on a fixed phone or even longer. The majority of the category over 40 years, the women in particular, kept their mobile phone calls shorter than their fixed phone calls (Appendix Table 12).

The respondents differed greatly in terms of their mastery of the answering machine. 47% of the women and 67% of the men knew how to dictate a new message and to change a message. Good usage skills were reported by almost all the women aged 20–29 years and those aged 30–39 years, but by only some 1/4 of the other female respondents. These skills were by far the poorest among boys aged 10–19 years. Living in a family does not seem to promote the skills of all family members, but rather the technical duties are apparently assigned to one person, as is quite natural, of course.

Compared with their answering machine skills, the men and women differed less as regards their mastery of home telephone functions (48 vs. 61%, respectively). The proportion of good mastery decreases markedly with age. All in all, some family members were evidently still unable to use all the telephone's functions, though families differed little from small households in this respect (Appendix Table 12).

Considering the families' assessments of their own use of the telephone, questions were asked only of persons aged 15 years or over, so that no data are available on the youngest age group. A considerably larger number of the men in all the age groups (70–90%) than of the women (44–69%) identified well or fairly well with the statement "I only call somebody if I have good reason to do so" (see also Appendix Table 13), while 77% of the men and women in the families perceived the statement "It is easy for me to call a stranger", which roughly operationalises the use of the phone as a networking tool, as characteristic or fairly characteristic of them. Identification with the statement was poorest among females aged 15–19 years (60%), the figure varying between 70% and 80% in the other categories. All in all the various groups resembled each other quite closely in this respect.

Approximately a half of the men and some 60% of the women in the families regarded the statement "I easily pick up the phone to call somebody" as applicable or fairly applicable to them. Apart from the oldest aged

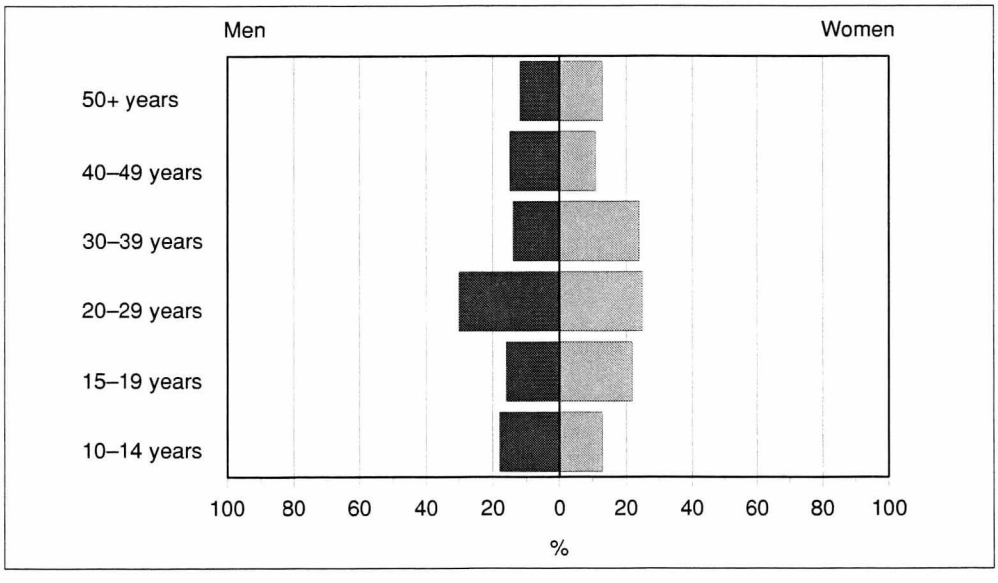


Figure 55. *Family respondents making over 20 calls from home in leisure time, by age and sex, in %*

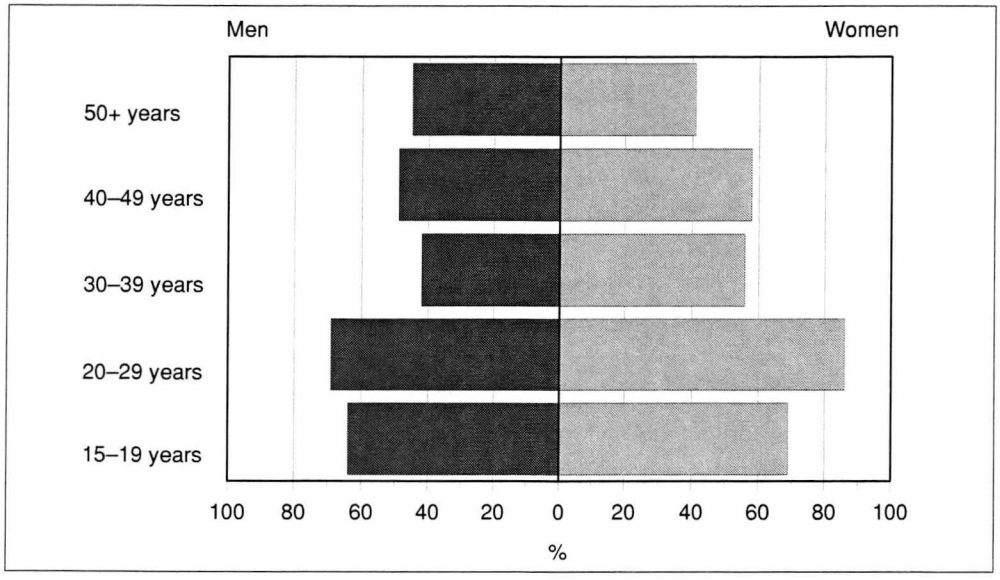


Figure 56. *Identification with the statement "I easily pick up the phone to call somebody" in families by age and sex, in %*

group (aged 50 years or over), the women were more likely to agree with it. Almost all the women aged 20–29 years reported that it was easy to call somebody.

Approximately 85% of the men and some 2/3 of the women felt that they make calls from home quickly and efficiently. The females aged 15–19 years seldom agreed with this, however, thus differing markedly from all the other groups. It may be concluded from the above that the majority of family members consider the phone a smooth, familiar means of communication and that they differ only slightly from small households in this respect.

Although the phone was mainly discussed above from the point of view of 'getting things done', it is equally justifiable to perceive it as a means of interaction. This was examined by means of another set of statements, of which "It's nice to chat on the phone" was accepted well or fairly well by 40% of the men and 70% of the women. Chatting was very common among women aged under 30 years and as many as over a half of the men in this category.

The statement "I want to know how my friends and acquaintances are getting on" was perceived by 55% of the men and 73% of the women as characteristic or fairly characteristic of them. This was true in particular of the women aged under 30 years (approximately 90%) and almost equally common among the men of the same age (approximately 80%). The men aged under 30 years differed from the women mainly in that they were less likely to chat on the phone, though they still used it in much the same manner for the purposes of interaction.

69% of the men and as many as 78% of the women in families identified well or fairly well with the statement "The phone is an essential part of my way of life". The trend was most common in the age category 20–29 years, though still typical of over 70% of those in the oldest category, so that families seem to value the phone

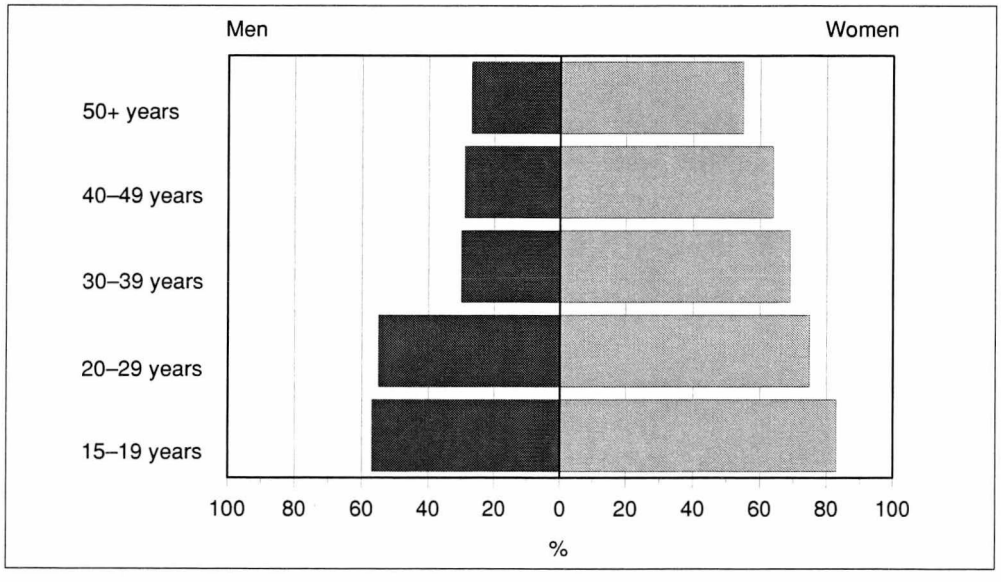


Figure 57. *Identification with the statement "It's nice to chat on the phone" in families by age and sex, in %*

as much as small households do.

Familiarity with the use of the phone for acquiring information can be measured roughly by comparing the dialling of service numbers in the various categories. 57% of the men and 50% of the women in families had dialled directory inquiry numbers at least once or twice in their lives. In the category 20–39 years, over one fourth of the men and 15–24% of the women had contacted the number frequently (see also Appendix Table 14).

27% of the women, some 1/3 of those aged 20–49 years, and 17% of the men had called transport timetable numbers at least once or twice. The men in this age category were most likely to call directory inquiry numbers, making up some 1/5 of all men.

Markedly fewer respondents had dialled bank service numbers. Approximately 12% had called numbers that do not reply with recorded messages and only 6% that they had called bank service messages, the figures being approximately 1/5 for women aged 20–29 years and some 1/4 for men aged 30–39 years. Some 10% in these categories had also called bank service messages. It seems that families do not use these services any more actively than do small households.

Using the phone in a manner characteristic of the information society can be examined by looking at the number of respondents who have used it to vote or ask questions on TV and radio programmes. Some 1/3 of the women and 1/4 of the men had voted in this way at least once and 7–8% three times or more. Over 10% of the women in the categories 15–19 years and 40–49 years had done so at least three times, the figure for males aged 10–14 years or over 40 years being some 10%. 4% of the men and some 2% of the women had asked questions on a TV or radio programme at least once. The categories of boys aged 10–14 years and men aged over 40 years contained at least some kind of group which can be said to have made use of this opportunity. No appreciable differences were observed between families and small households in this respect, though the former may be slightly more active. This may be attributable to encouragement from other family members.

The larger the number of friends and relatives, the more likely it is that the phone will be used to contact people. The women in families reported a larger number of relatives whom they meet regularly than did the men, who in turn reported a larger number of friends and acquaintances. Having more than 10 regular friends was by far the most common in the category 15–19 years, while some 1/3 of the women aged over 40 years were likely to have over 10 relatives whom they meet on a regular basis. The material does not provide any information on differences in the frequency with which the respondents contact their relatives and friends, so that both sexes irrespective of age can be assumed to have an equal number of relatives and friends whom they could call.

TV equipment as a gateway to modern information and communications technology. The topic of discussion here will be the use of the television, teletext facilities and video recorders from the point of view of whether they have provided their users with capabilities that would help them to learn computer usage skills and make use of network services, for example.

Watching TV was less common in families than in small households, with the possible exception of women aged 20–29 years, who did so TV more often than did those in two-person households. Of the men, those aged under 20 years watched TV about an hour more per day than did those aged 20–49 years, which was also true for women aged 20–29 as compared with those of age 30–49 years. The watching of TV increased among both sexes in the age group 50 years or over. Some 2/3 of the family respondents aged 20–39 years reported that they had the TV on in the background when doing something else, the overall trend being for this to be slightly more common in families than in small households (see Appendix Table 15).

The families were not as likely as were the small households to be systematic to any appreciable degree in their selection of TV programmes, though they did use a video recorder much more readily than the corresponding age groups in small households. The proportion of persons seldom watching TV increased with age, this being slightly more pronounced among the women, and it in any case seemed to be slightly higher in all the age categories in the families than in the small households (see Appendix Table 15).

The men in the families were at least equally as capable as those in small households of tuning their television and video recorder to the desired channels, nor were any differences observed between the women in this respect. The men in families were also slightly more likely to jump from one channel to another than those in small households, but the women slightly less so (see Appendix Table 15).

Consulting teletext pages involves active data search and acquisition techniques, and in some cases can provide virtually real-time information. Teletext facilities can be used to increase freedom of action in terms of time and to obtain 'services' in the middle of watching TV of a kind resembling those available

through information networks. They also allow for two-directional communications through pages for buying and selling and chat pages. In addition, the interface is easy to use and is much more readily available to families than a computer or modem (Figs. 58–62, see also Appendix Table 16).

All the male and female age categories in families made less extensive use of teletext facilities than those of the same age in small households. Their use was more common among boys aged 15–19 years than among girls, and the difference was also in favour of the boys in the age group 10–14 years, though only marginally so. The men were evidently more likely to consult the teletext pages on a daily rather than on a weekly basis, while the figures for the women showing an equal distribution between the two types of use. Few of the respondents reported that they had never used teletext facilities (given that they had access to them), except for women aged over 40 years. It may be concluded from the above that teletext use has not promoted most family members to acquire information freely according to their personal timetables (see also Appendix Table 16).

Boys aged under 20 years were most interested in consulting lists of TV programmes and sports results, while over a half of the men aged over 20 years contacted news, sports and pools pages on a regular basis. Of the females aged 10–29 years, quite many were using teletext facilities for finding out about TV programmes. Teletext news also began to arouse some interest among the women from age group over 20 years onwards, while the weather forecasts were slightly less popular.

Some 4% of the males and females in families had left messages on teletext discussion boards or placed a sales ad. This was the proportion of male 'experimenters' in all age categories except for 30–39 years. Of the women, those aged 15–19 and 40–49 year were more active in this respect, 8% of the latter having left messages more than once. The above use was slightly more common in families than in small households. 4–5% of the family respondents reported that they had ordered articles through the shopping channel or teletext facilities. 9% of the men aged over 50 years had done so occasionally, while of the women, those aged 20–49 were most active in this respect, the figure being 7%, which also exceeds that recorded for small households.

Males in the age categories 15–39 years were the only ones among who a half managed to use teletext facilities in a manner typical of the information society. Teletext use was minor small in the other male categories, and among the women in particular, so that it cannot be expected to create behavioural patterns of a kind that would help people to learn the capabilities required in the information society.

Although teletext shopping was more common in families than in small households, it was in any case much less frequent than the use of mail order services. An average of 1/3 of the men and 2/3 of the women reported that they had purchased articles by mail order at least once during the previous year. The most active male group was that aged 20–29 years, where the number of persons having ordered articles at least twice was also greatest. Of the women with families, over 80% of the age category 20–29 years and as many as 2/3 of those aged 30–49 years had placed a mail order at least once. Two orders were reported by over a half of the women aged 20–49 years, and five or more by over one fifth of those aged 20–39 years. Mail orders thus en-

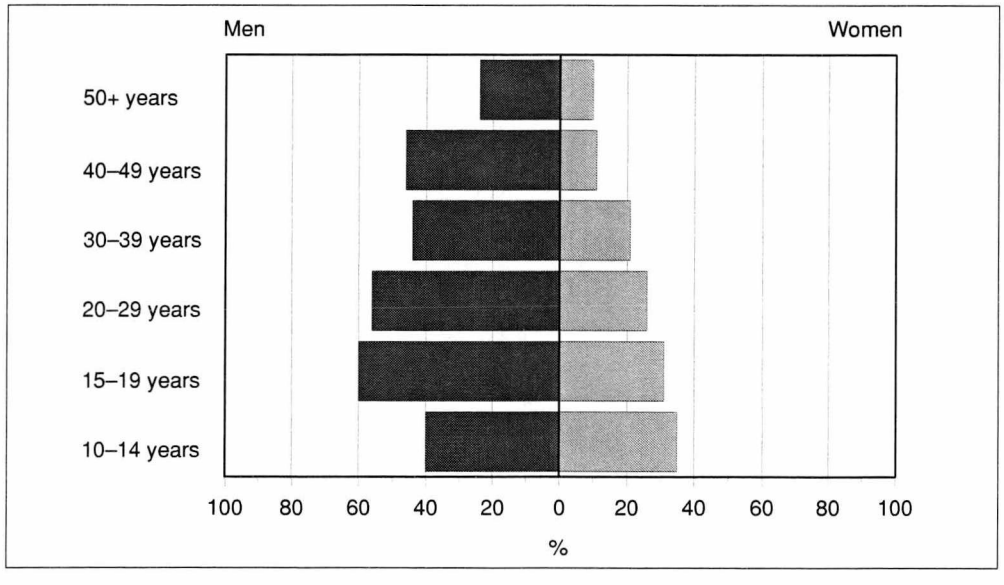


Figure 58. *Family respondents using teletext facilities daily, by age and sex, in % of those with access to such facilities*

Figure 59. *Family respondents consulting teletext news at least weekly, by age and sex, in % of persons with at least some experience of teletext use*

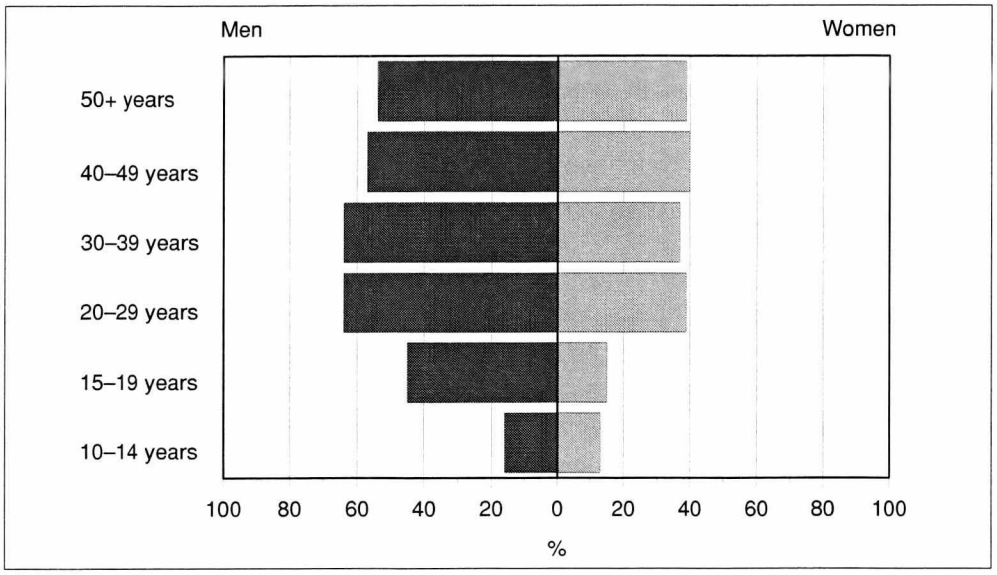


Figure 60. *Family respondents consulting teletext sports pages at least weekly, by age and sex, in % of persons with at least some experience of teletext use*

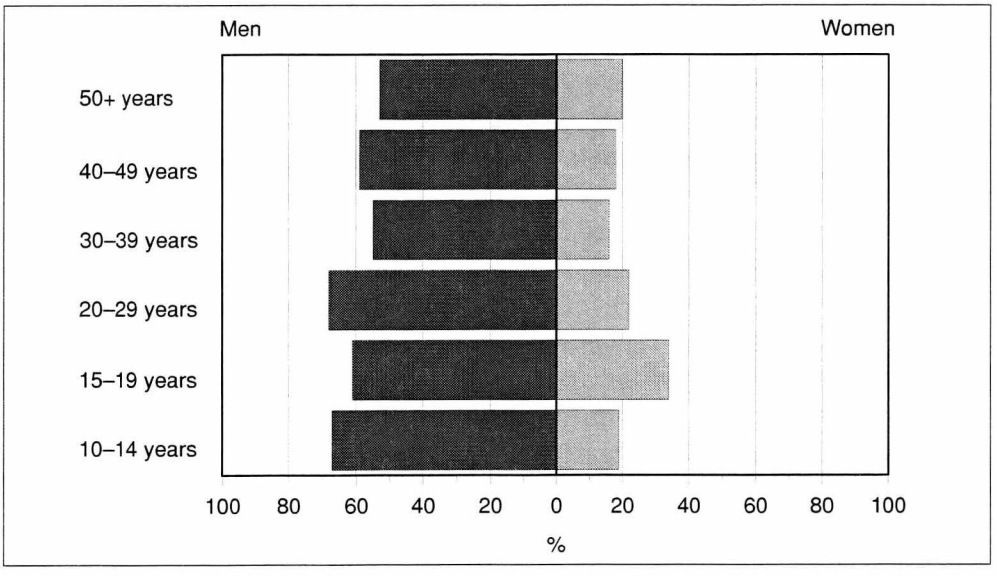
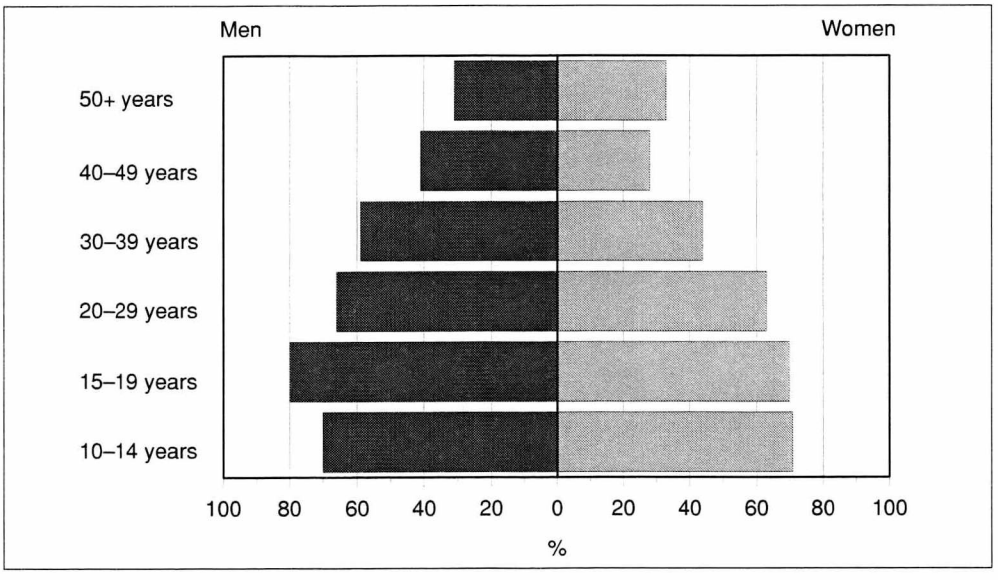


Figure 61. *Family respondents consulting teletext pages at least weekly to find out about TV programmes, by age and sex, in % of persons with at least some experience of teletext use*



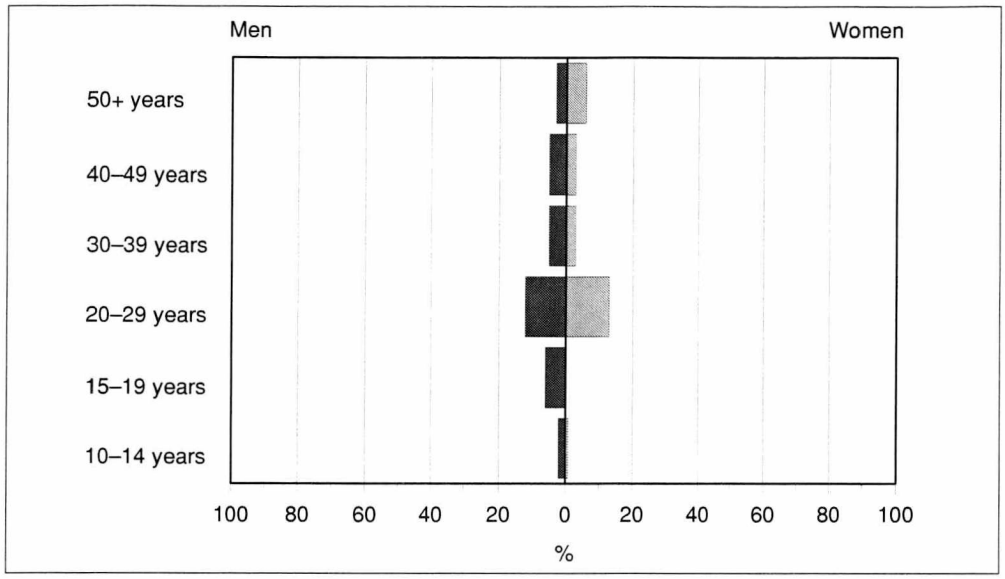


Figure 62. *Family respondents consulting teletext pages at least weekly for transport timetables, by age and sex, in % of persons with at least some experience of teletext use*

joyed a considerably greater popularity in families, thus already introducing them to the habit of shopping from home. The number of families with access to data network connections is much larger than that of corresponding small households, so that basically they have a better potential for moving over to network shopping. There are still many problems to be solved, however, such as changing habits and the developing a user interface capable of competing with mail order catalogues.

Use of a home computer and network connections in families and related skills. As stated above, some features of the use of the remote TV controller and teletext facilities may accustom users to browsing and scanning information in a manner that closely resembles the use of networks. These uses were common in the younger age groups, who were also the most likely to have access to a home computer and a network connection. The focus below will be on home computers, network connections and respondents' assessments of their own computer usage skills.

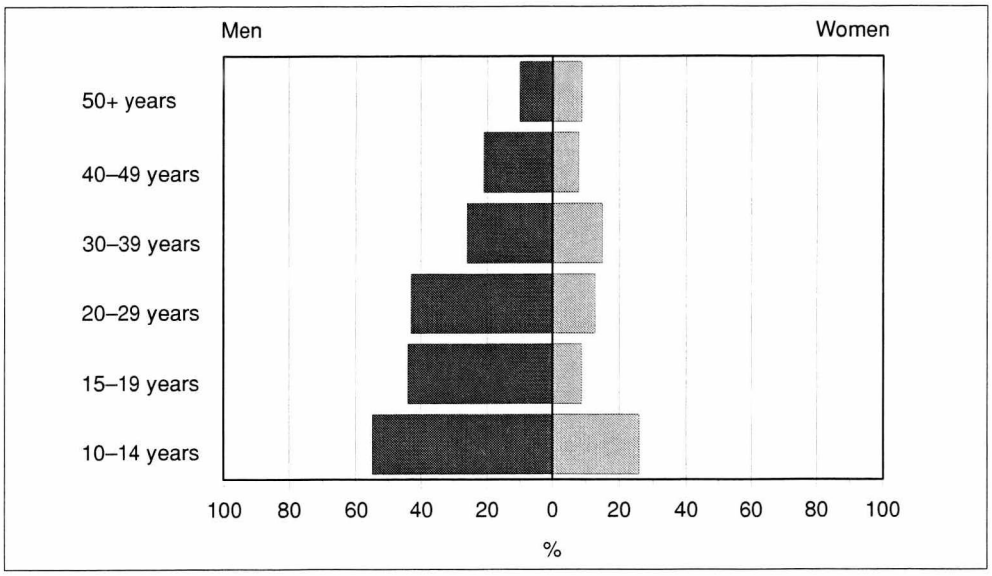
The regularity with which the respondents use home computers and their network connections is illustrated in Figs. 63–66 for those who had access to the necessary equipment. The younger age groups were the most active daily users of a home computer in families, as indicated by the fact that it was only in the category of males aged 10–14 years that over a half were using one daily. The proportion of daily users also exceeded 40% among males aged 15–29 years, but declined notably in the older age groups. Only one fourth of the girls aged 10–14 years, the most active female group, were using a home computer daily. In the other age groups, some 10% of those with a home computer reported that they used it on a weekly basis.

The number of persons using a home computer at best occasionally increased with age, to the extent that they made up over 50% of men aged over 50 years and women aged over 40 years, as shown in Appendix Table 17. Occasional use was also reported by 40% of the women aged 20–39 years. 1/3 of the men and women aged 20–29 years had begun to use a computer only recently, while a larger proportion of small households had been using one for slightly less than two years. Daily computer use was slightly less common in families in all the age categories. The families also contained a larger number of persons, men in particular, who made very little use of a home computer.

Compared with home computer use, the proportion of daily e-mail users falls dramatically. Men aged 20–29 years comprise the only group in which 30% use the e-mail at home daily (although some 35–40% of those with access to a home computer also had a modem connection). In the other male groups the number of daily e-mail users did not exceed 10%. Women with families were not using the e-mail at home daily at all. In fact, only slightly over one fourth of the women in the category 20–29 years had at least some experience in the use of network connections through a home computer. Of the men, those aged 20–29 years were the only category to contain any appreciable number of persons with at least some experience of e-mail use (see Appendix Table 17).

Families used the Internet more than the e-mail. The trend was evident among the women in particular, at least some of whom had used the Internet at least once in their lives. This may be attributable to the fact that a modem connection purchased to allow one family member to use the e-mail also enables the other members to access WWW pages even though they do not have e-mail addresses of their own.

Figure 63. *Family respondents using a home computer daily, by age and sex, in % of those with at least some experience of home computer use*



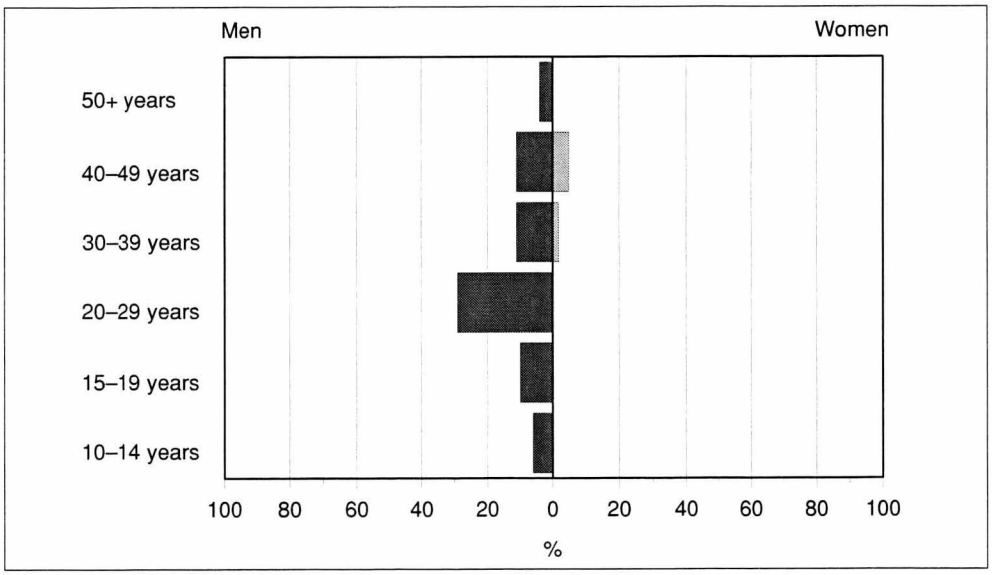
Even in families, computer use did not automatically involve the use of network connections. Approximately one third of the male home computer users aged 20–29 years were in fact the only ones to have accessed information connections from home. Their use only appears as a curiosity in the other groups.

Quite a large number of men aged under 40 years in particular had used a CD-ROM unit at home during the last month. The trend even in some female categories is for every second respondent to have already used a CD-ROM unit at home during the last month. Regular CD-ROM users (at least 10 times a month) were recorded among the males aged 10–14 and 20–29 years (see Appendix Table 17).

The extents to which families use some of the most common computer functions at home are compared by age in Figs. 67–70. Games were most common among young people. In fact, almost a half of the male home computer users aged 20–29 years reported that they played computer games weekly, whereas among the females regular players were to be found only in the age category 10–14 years.

Word processing was by far the most commonly used function in homes, so much so that even among the women aged 30–39 years, as many as one half of those with access to a home computer had done this. Spreadsheet and graphics programs were used much less, nor was any extensive use made of the computer for studying, apart from males aged 20–29 years. Using computer programs on a weekly basis was much less common in families than in small households, all age categories included, so that although the home computer has already reached a larger number of families, the number of regular users hardly exceeds that found in small households. This may partly be due to the fact that use of the computer in families requires negotiations between a larger number of household members (see Appendix Table 18).

Figure 64. *Family respondents using e-mail at home daily, by age and sex, in % of the persons with at least some experience of home computer use*



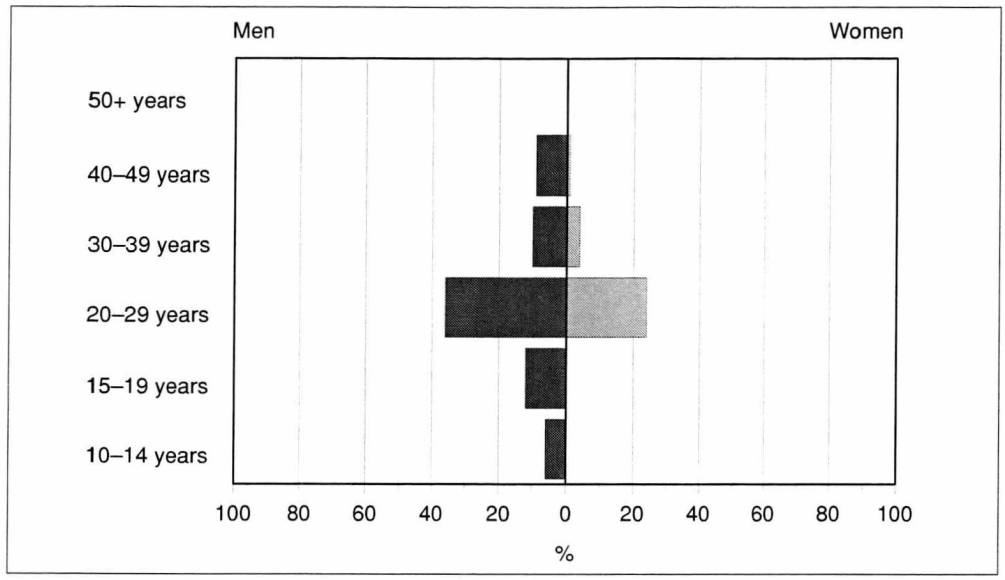


Figure 65. *Family respondents using the Internet at home daily, by age and sex, in % of the persons with at least some experience of home computer use*

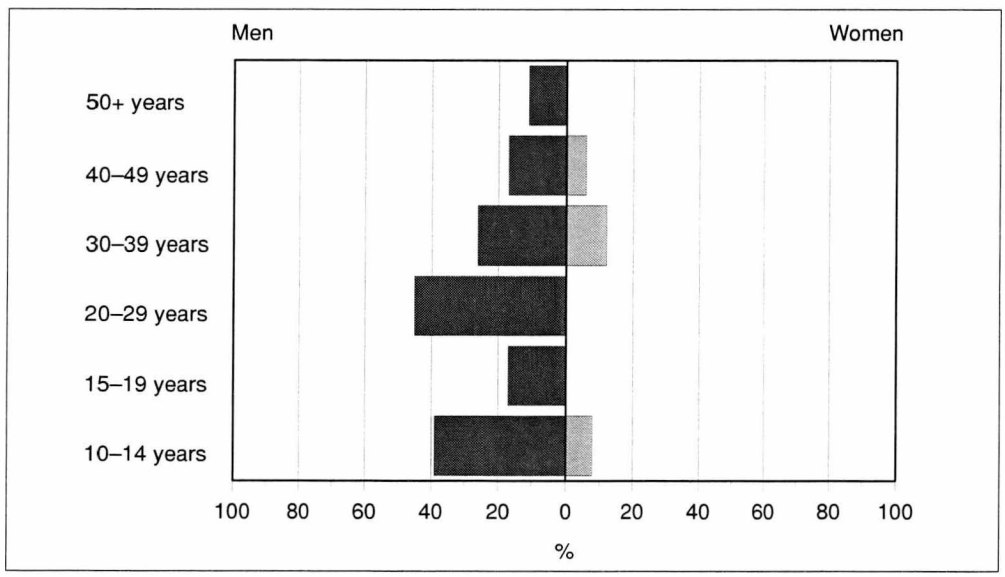


Figure 66. *Family respondents who have used a CD-ROM unit at least 10 times/month, by age and sex, in % of the persons with at least some experience of home computer use*

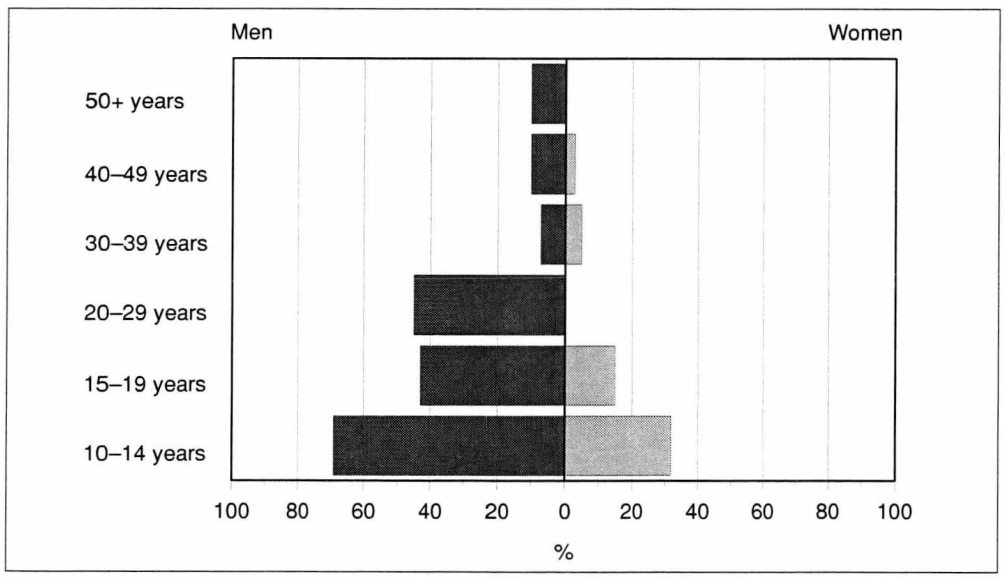


Figure 67. *Family respondents who play computer games at home at least weekly, by age and sex, in % of those with at least some experience of home computer use*

Figure 68. *Family respondents using a word processing program at home at least weekly, by age and sex, in % of those with at least some experience of home computer use*

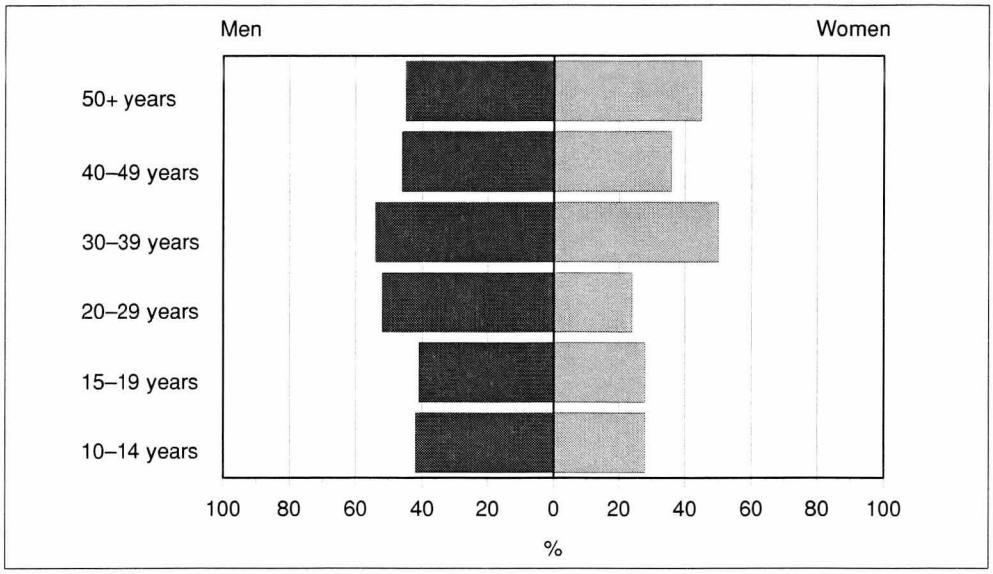


Figure 69. *Family respondents using a spreadsheet program at least weekly, by age and sex, in % of the persons with at least some experience of home computer use*

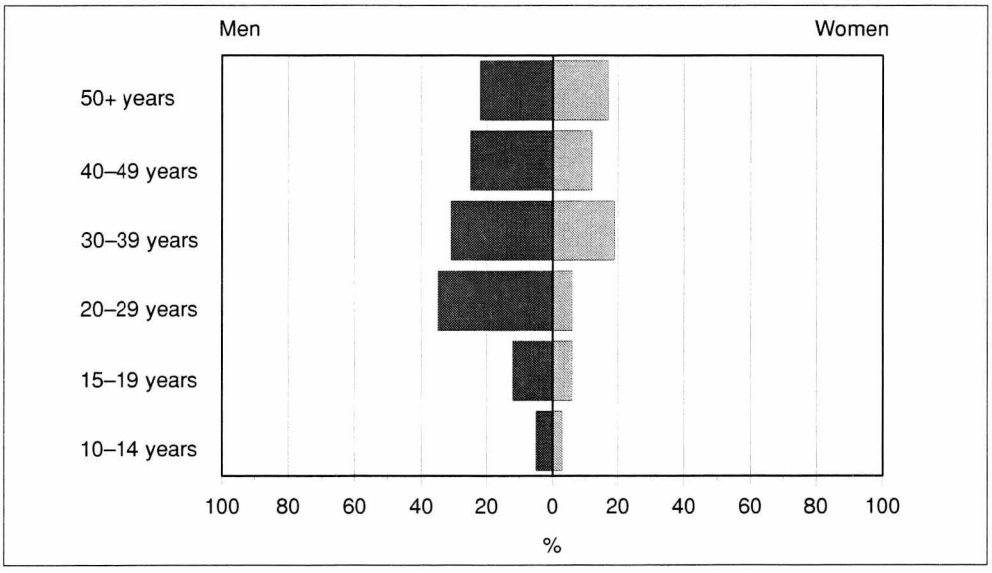
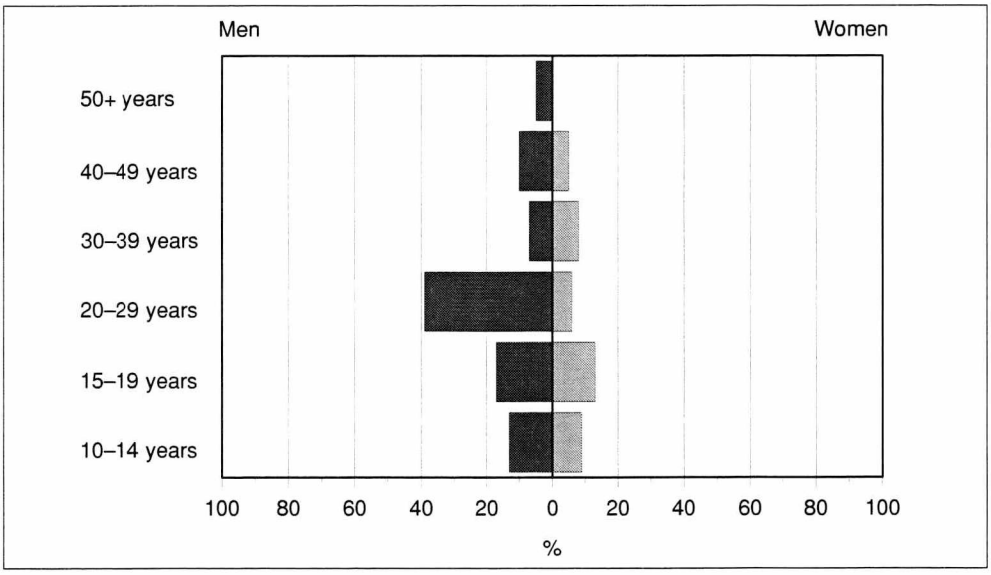


Figure 70. *Family respondents using a home computer at least weekly for studying, by age and sex, in % of those with at least some experience of home computer use*



Competence in the use of modern information and communications technology in families. An examination of the proportions of family respondents who had at least some experience in computer use (at home, work, school or place of study) shows their utilisation opportunities to be distributed in an essentially different manner from that recorded for home use. Small age-specific percentage differences were recorded between the sexes even when taking into consideration computer use outside the home. These are illustrated in Fig. 71, which indicates that less than 10% of persons aged 10–14 years and 1/5–1/4 of those aged 15–19 years had not used a computer during the previous year. One quite surprising finding was that less than half of the family members aged 20–29 years+ had had access to a computer. Computer use was far less common among persons aged over 50 years, especially women, but it was also true of persons aged 20–39 years living in families as compared with the corresponding category in small households, whereas the opposite was the case in the older age groups.

The above can be backed up by an excerpt from an article entitled "Children and young people: Information technology and future prospects" (p. 44–45) by Mari-Elina Laukkanen, who discusses the use of computers among children and young people on the basis of the material analysed in the present paper. "Four out of five among the 527 000 persons aged 12–19 years in Finland at the end of 1996 (Population Structure 1996) had used a computer, a total of 429 000 children and young people. The computer has thus become an essential part of their everyday lives. Of these, 289 000 had used one at school during the autumn term preceding the interview and 245 000 at home. 81% of the young people in their early teens and 50% of those aged 16–19 years had used a computer at school. Computer use is more common in the secondary school than in the upper secondary school. Library computers were also in active use, as suggested by the fact that 214 000 of the respondents had used these for network contacts during the six months preceding the interview. Their use is more common among young people in their early teens than among those aged 16–19 years.

Every second person aged 16–19 year currently has access to a home computer. Daily use was reported by one third of those in this age category, most of them boys. Active use is more common among those aged 12–13 years than in the category 16–19 years. As many as 170 000 children and young people are already using a home computer at least weekly, and one in three of the regular users reported setting aside 2–5 hours a week for this purpose, and slightly less than one third 10 hours or more. 'Intensive' use of this kind is most common among boys at the comprehensive school, who often become interested in computers at an early stage and use them fairly regularly from the beginning. Three out of four children aged under 10 years had been introduced to computer use at the age of 6 or even younger if they had had a computer at home, and some 40% of those aged under 10 years use a computer for 1–2 hours a week and as many as 20% for 3–5 hours. Not all comprehensive school or upper secondary school pupils have access to a home computer, but the majority feel that this has not hampered their studying, although as many as 42% of those at the upper secondary school who do not have a computer at home regard this as detrimental to their studies'.

We will now look at the computer users' opinions of their skills in this respect (Figs. 72–75). Almost all the

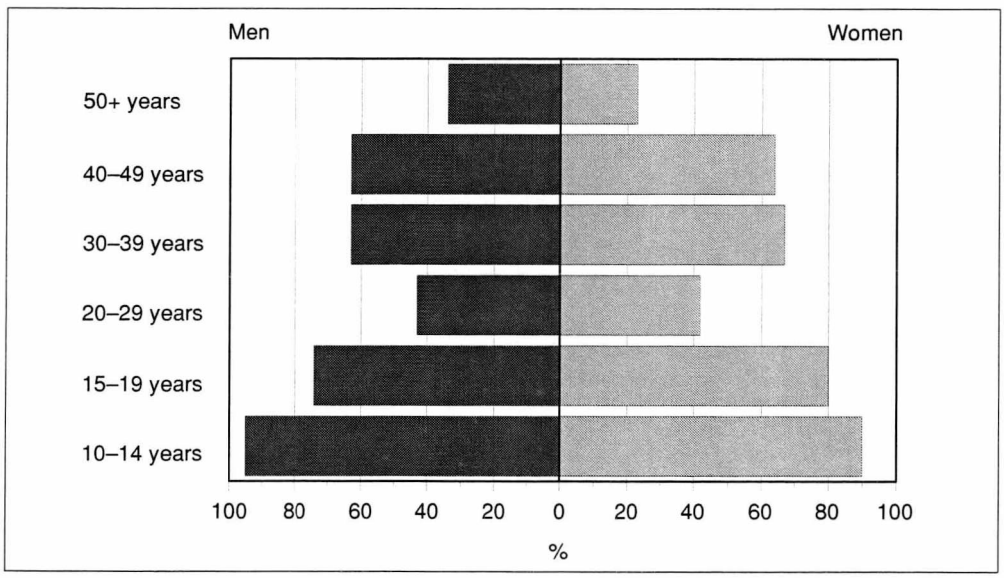
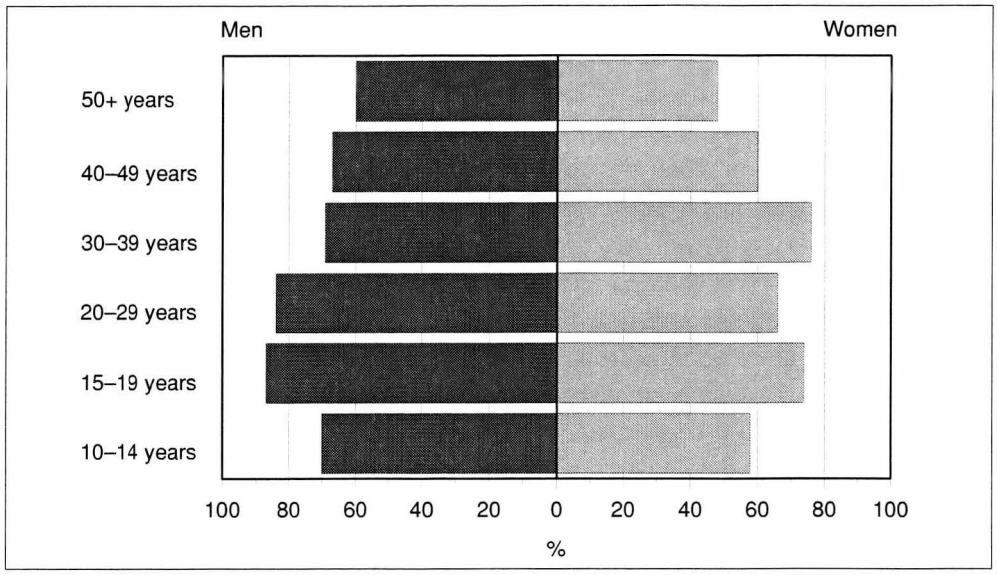


Figure 71. *Family respondents with some experience in home computer use as a % of all persons in that age category, by age and sex*

Figure 72. *Family respondents mastering word processing at least fairly well, by age and sex, in % of persons with some experience of computer use*

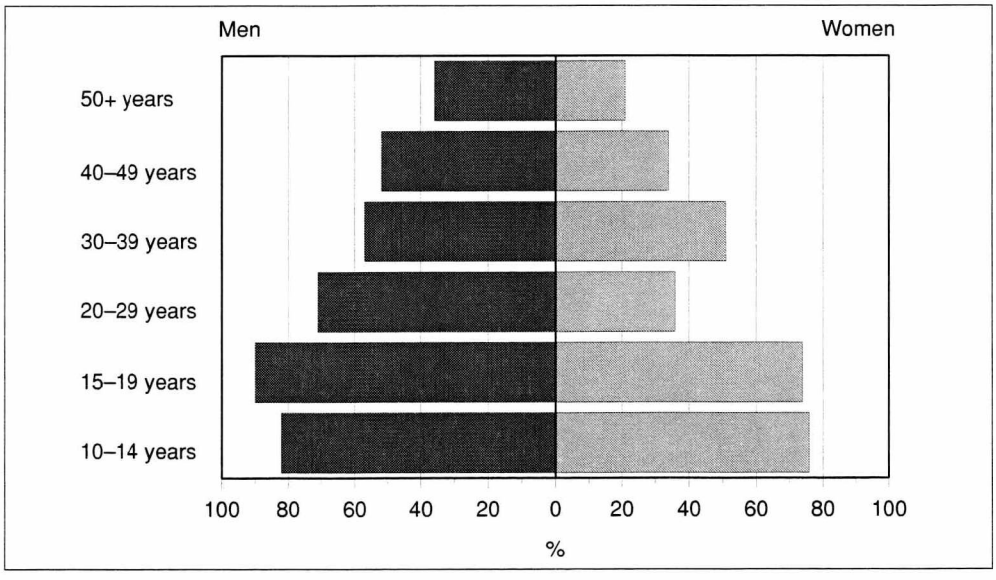


family respondents were able to use a mouse, better than a keyboard, except for women aged over 40 years, though gaps in these skills do not seem to hamper computer use to any appreciable extent. The men reported better word processing skills than the women, and the young men more so than the older men. No more than one fourth had had any experience in word processing. Graphics programs were another type that young people reported mastering well, but skills deteriorated rapidly with age. The number of persons not having used such a program was much larger than that of persons with no word processing experience (see Appendix Table 18).

A minority of computer users reported fairly good e-mail skills, persons of this kind being in the majority only among men aged 20–29 years. Most of the men in this category and in the age group 15–19 years had at least some experience with using e-mail. In this respect the situation with the small households was substantially better. Young people aged under 20 years mastered the use of an Internet browser fairly well, and were also more likely to use it than the e-mail. Use of an Internet browser was less common than that of e-mail in the other categories, however. Persons aged 20–39 years and living in small households were more likely to use a browser than their age mates in families (see also Appendix Table 19).

The extents to which families are capable of using certain basic computer functions are illustrated in Figs. 76–79, which point to evident gaps in this respect, of a kind also observed in the case of small households. Poor skills were observed among persons aged 10–14 years and 15–19 years in particular, the latter being superior to the others only as regards their command of English. The majority of the men aged 20–29 made up in fact the only group which reported independent mas-

Figure 73. *Family respondents mastering a graphics program at least fairly well, by age and sex, in % of those with some experience of computer use*



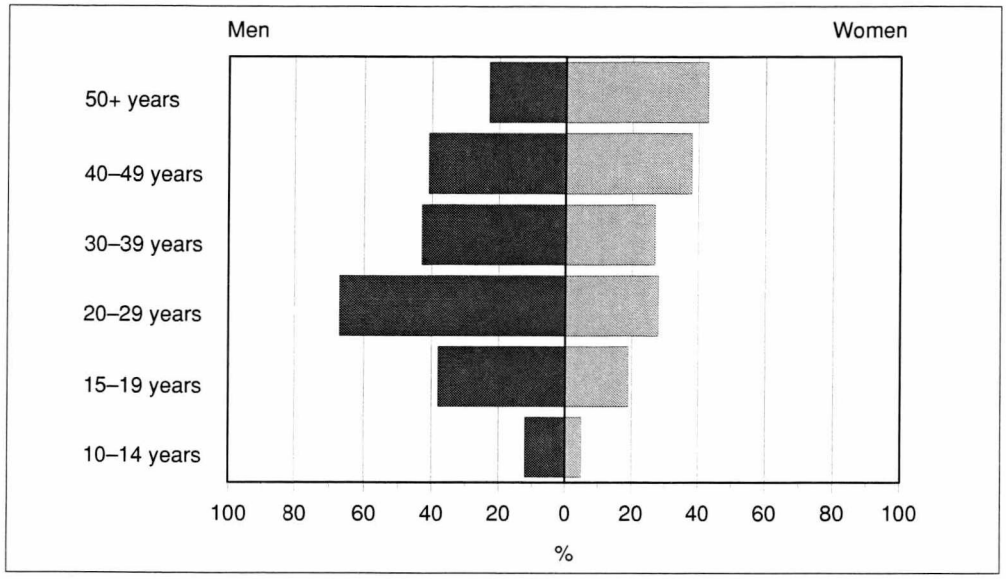


Figure 74. *Family respondents mastering an e-mail program at least fairly well, by age and sex, in % of those with some experience of computer use*

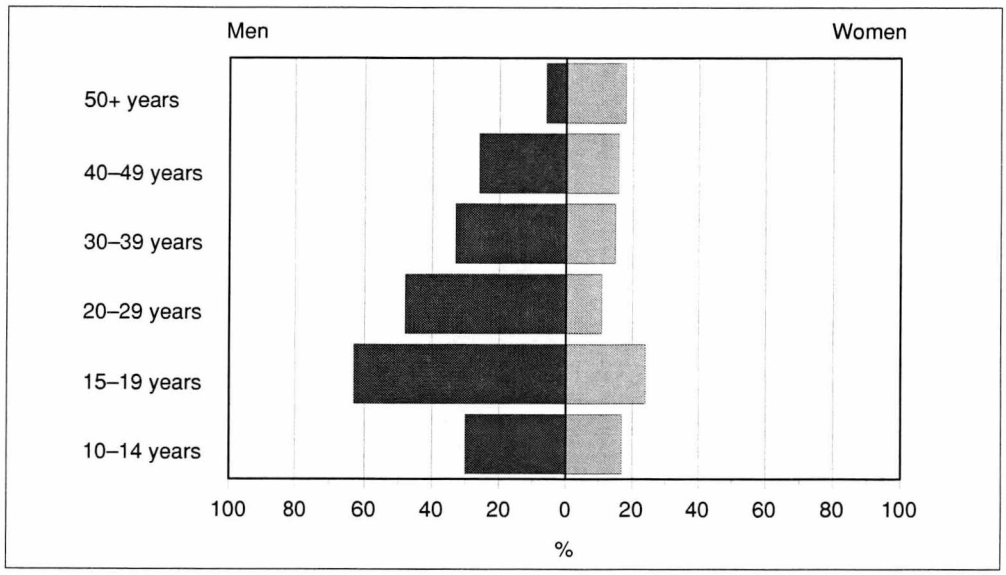


Figure 75. *Family respondents mastering the use of an Internet browser at least fairly well, by age and sex, in % of those with some experience of computer use*

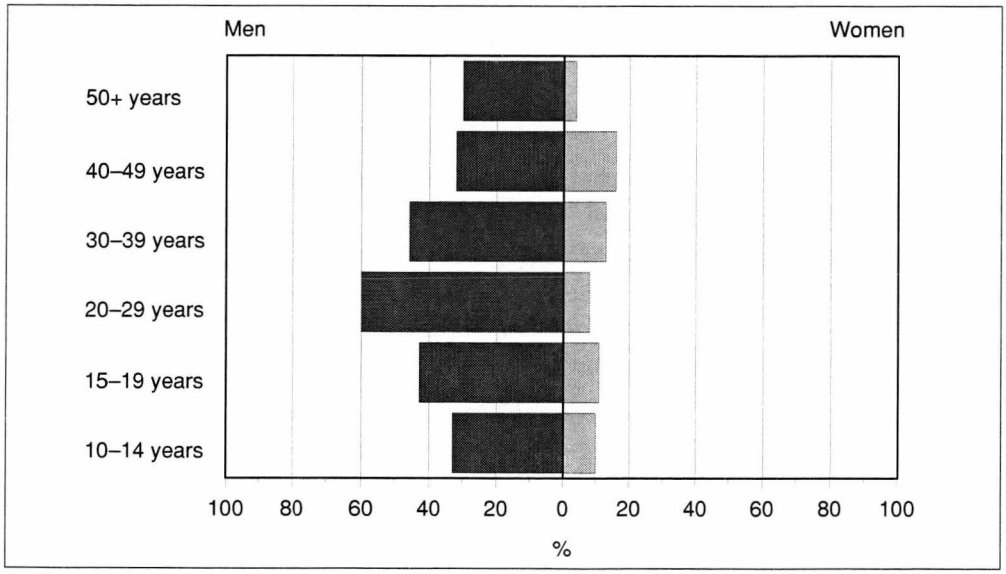


Figure 76. *Family respondents mastering program installation and updating, by age and sex, in % of those with some experience of computer use*

Figure 77. *Family respondents mastering the copying of files onto discs at least fairly well, by age and sex, in % of those with some experience of computer use*

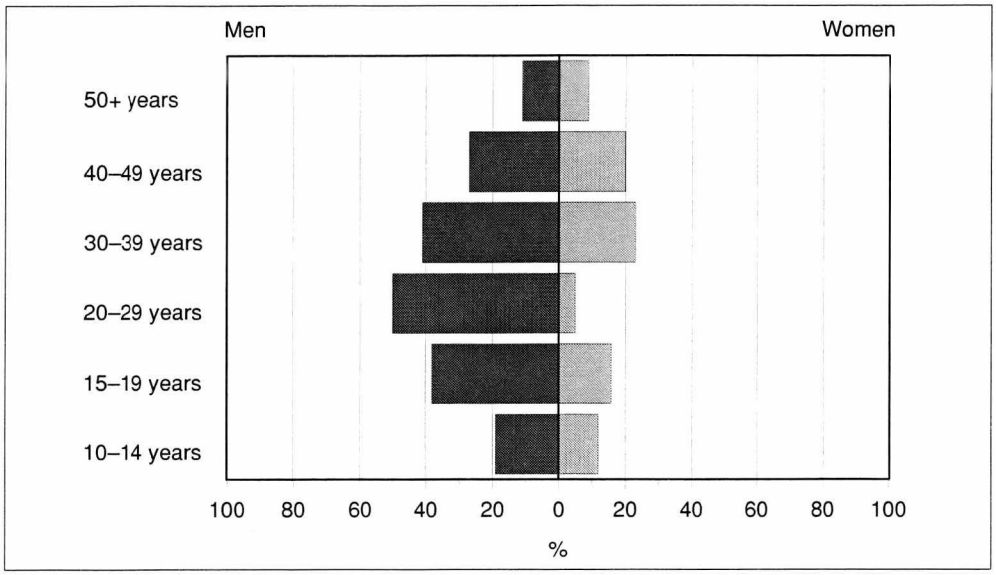


Figure 78. *Family respondents mastering the downloading of programs from the Internet to some extent, by age and sex, in % of those with some experience of computer use*

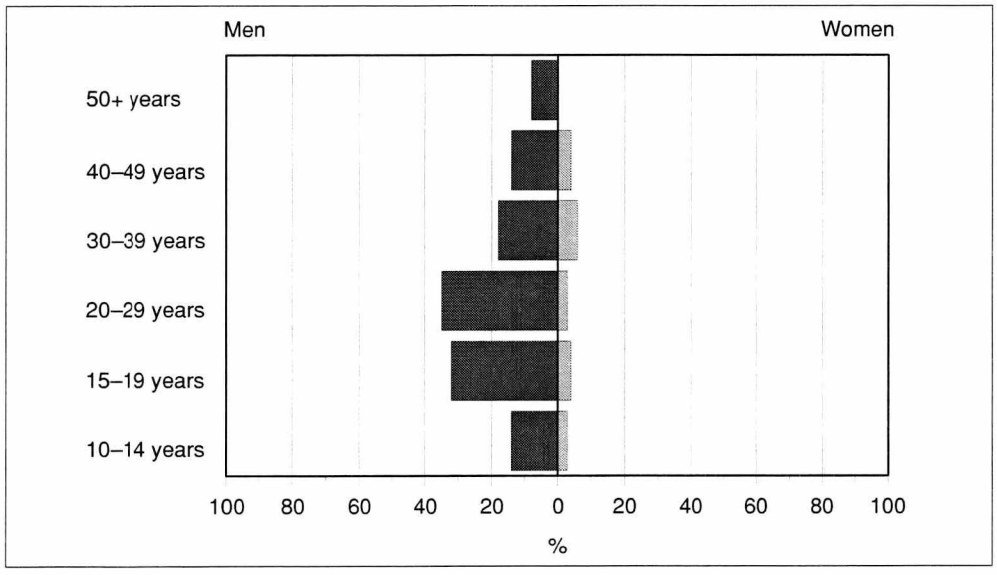
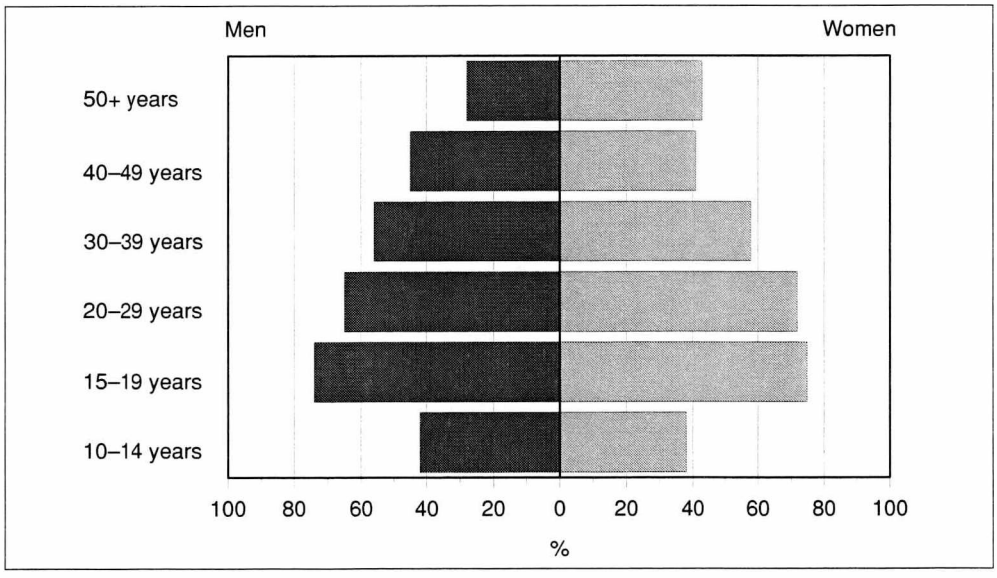


Figure 79. *Family respondents using English-language programs, if only by guessing, by age and sex, in % of those with some experience of computer use*



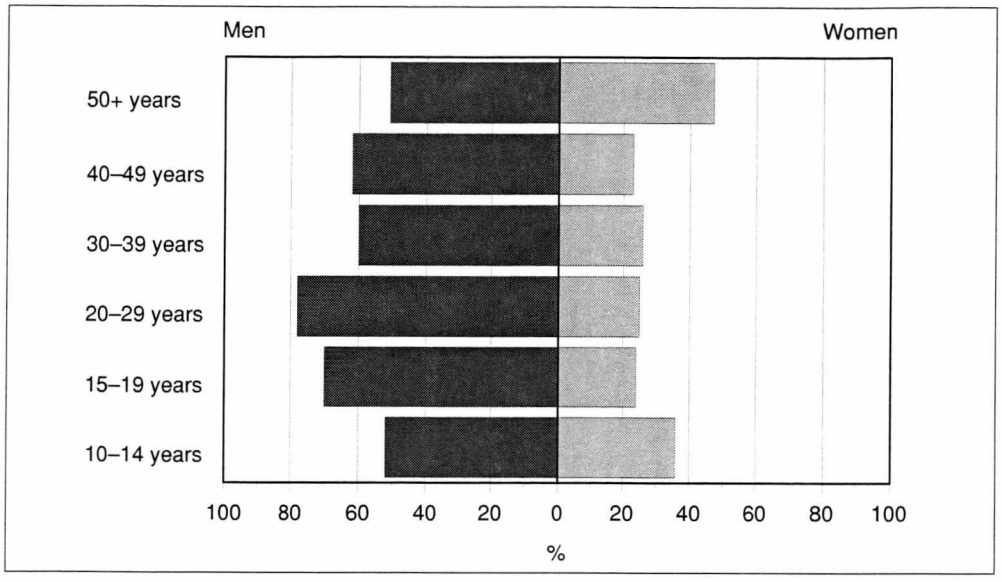


Figure 80. *Proportions of family respondents identifying with the statement "I have learned information technology on my own", by age and sex, in % of those with some experience of computer use*

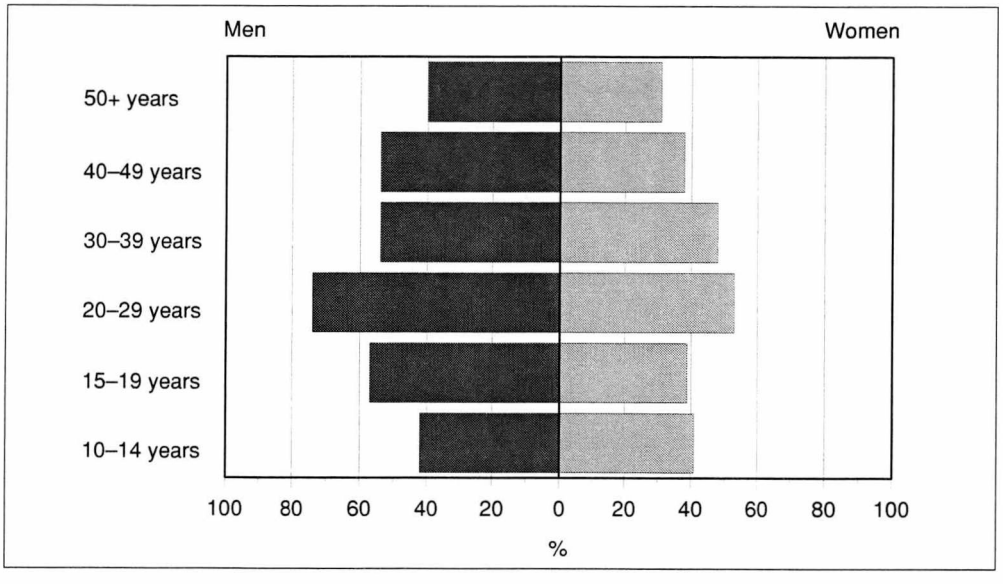


Figure 81. *Proportions of family respondents identifying with the statement "I have applied at home the things I have learned at my work etc.", by age and sex, in % of those with some experience of computer use*

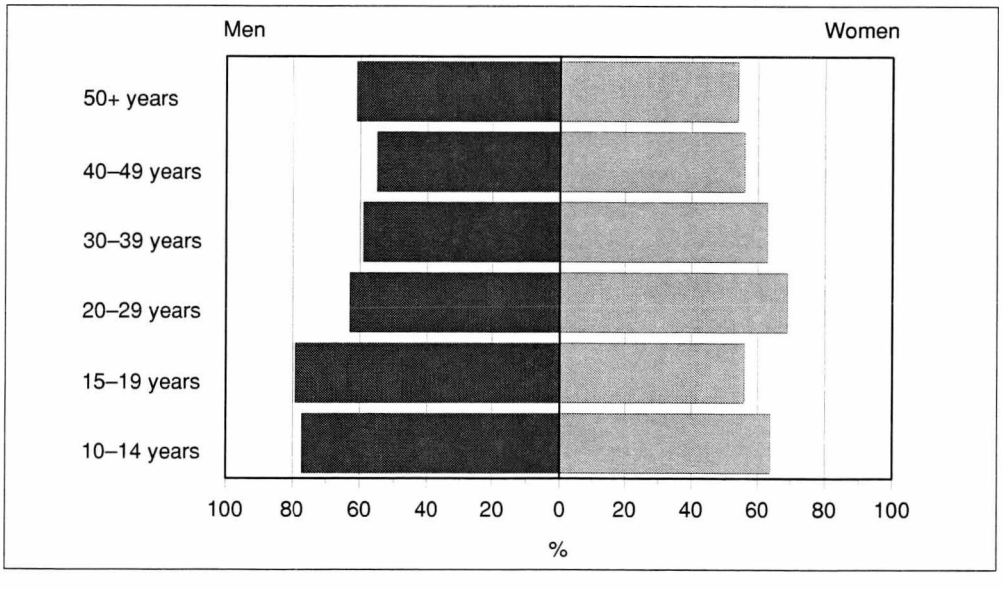
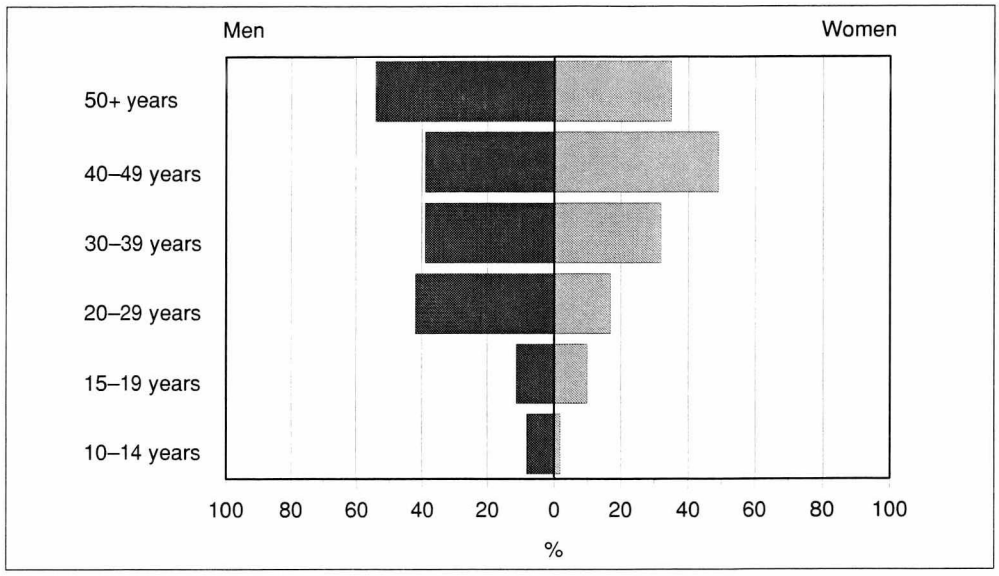


Figure 82. *Proportions of family respondents identifying with the statement "One or more people have instructed and encouraged me to use modern technology and services", by age and sex, in % of those with some experience of computer use*

Figure 83. *Proportions of family respondents identifying with the statement "I have frequently attended information technology courses or corresponding events", by age and sex, in % of those with some experience of computer use*



tery over the skills listed in the table. The situation with the women was extremely poor, however, the general impression being that the skills of those living in small households may be slightly better than those of women of the same age living in families (see also Appendix Table 20).

Acquiring computer usage skills through work, studying or school does not seem to yield any profound or comprehensive expertise, but rather a restricted mastery of some functions only.

Learning how to use modern information and communications technology involves the adoption of new things in the same way as does learning to use other tools. Other people play an important role in the adoption of innovations, as suggested by innovation theories. Families may potentially also contain 'teachers' of their own, which are not so readily available in small households. The sources from which the families derived their motivation to learn new information technology and from which they received guidance in its use at home and in leisure time are illustrated in Figs. 80–83.

No appreciable differences were observed between families and small households in this respect, at least not of a kind that would suggest that in addition to instruction and counselling within the family, they also received other types of personal guidance to a greater extent than small households in general had. Receiving instruction from others was most common among males aged 10–19 years.

Families' attitudes towards the information society. The focus above was on families' equipment resources, the use of different types of equipment at home, their connection with the adoption of new information and communications technology, and capabilities for using modern information technology. The adoption of innovations can also be assumed to require a favourable attitude, though it is equally justifiable to think that the use of new information and communications technology will alter people's attitudes in a direction that will promote its use. The levels of education in families, their attitudes towards data protection and the information society, and their future orientations will be compared in Tables 18–19.

Table 19. *Education and monthly gross incomes/person in families by age and sex, in %*

	Men					Women				
	15–19 years	20–29 years	30–39 years	40–49 years	50+ years	15–19 years	20–29 years	30–39 years	40–49 years	50+ years
Matriculation examination	39	19	36	24	12	12	44	51	28	12
At least college-level vocational education	10	4	37	38	24	0	50	53	43	22
Average income category/person*	2.05	2.00	2.01	2.21	1.99	2.08	1.60	1.92	2.20	1.97

* A classified gross incomes variable the average of which describes a category and not an amount in FIM.
Category 1 = less than FIM 4 000/month, Category 2 = FIM 4 000–6 000/month, Category 3 = FIM 6 000–8 000/month.

Table 20. *Families' attitudes towards data protection and information technology, and their orientation towards the future, by age and sex, in %.*

	Men					Women				
	15–19 years	20–29 years	30–39 years	40–49 years	50+ years	15–19 years	20–29 years	30–39 years	40–49 years	50+ years
Experiencing threats to data security, sum*	1.96	2.32	2.36	2.45	2.51	1.86	2.61	2.59	2.69	2.40
Information society fears, sum*	2.35	2.23	3.38	3.71	4.06	3.05	3.61	3.71	3.97	4.25
% of future-oriented persons*	36	21	24	14	14	22	20	12	10	11

* See table 12 and appendix 1–3.

The general and vocational educational levels of the women were higher than those of the men. No direct correlation was observed between gross incomes per family member and access to information technology appliances at home.

A sum variable was formed on the basis of questions describing respondents' attitudes towards data protection (dh28) (see Appendix 1) in order to account for any related fears. A corresponding variable was also formed from the items on attitudes towards the information society (gh3) (see Appendix 2) to describe negative attitudes towards the information society. Higher scores on these variables thus denote either an increasing fear of infringement of one's data privacy or a suspicious/frustrated attitude towards the information society. Orientation towards the future was determined by means of items tu1–tu4 (see Appendix 3), the alternatives being past orientation, present orientation and multiple orientation. The questions were asked only of persons aged 15 years or over.

The maximum sum variable value being seven, we may conclude that families seem to have quite a confident attitude towards the information society. The young people aged 15–19 years experienced less data security threats than did the other groups, while fears regarding the information society were substantially less marked among the men aged under 30 years, whereas among the women this was true only for the age category 15–19 years. All in all, fears were more common among the women. It seems that the gaining of experience with modern information and communications technology may reduce the fears aroused by the information society. The proportion of future-oriented families was slightly smaller than that of future-oriented small households of the same age. On the other hand, their proportion is not very great even in the young age groups and drops considerably among the men from age 40 years onwards and among the women at age 30 years.

The differences observed in the respondents' attitudes towards the information society were not pronounced ones, but they may still affect, or at least be connected with, the purchase and utilisation of information technology appliances in families. The proportion of

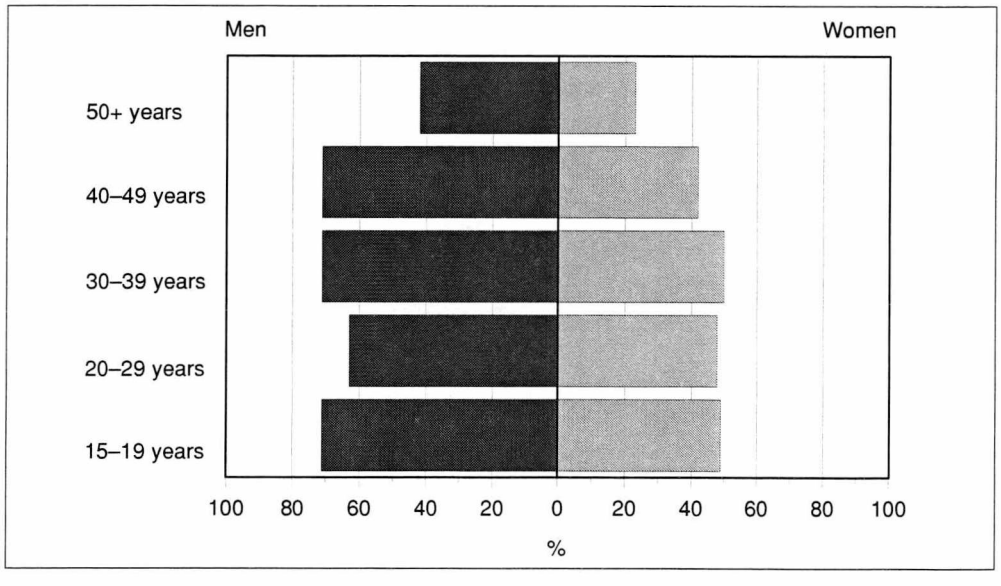


Figure 84. *Proportions of family respondents identifying with the statement "I am interested in new technology and purchase it according to what I can afford", by age and sex, in %*

Figure 85. *Proportions of family respondents identifying with the statement "I am interested in social matters and culture more than I am in equipment and technology", by age and sex, in %*

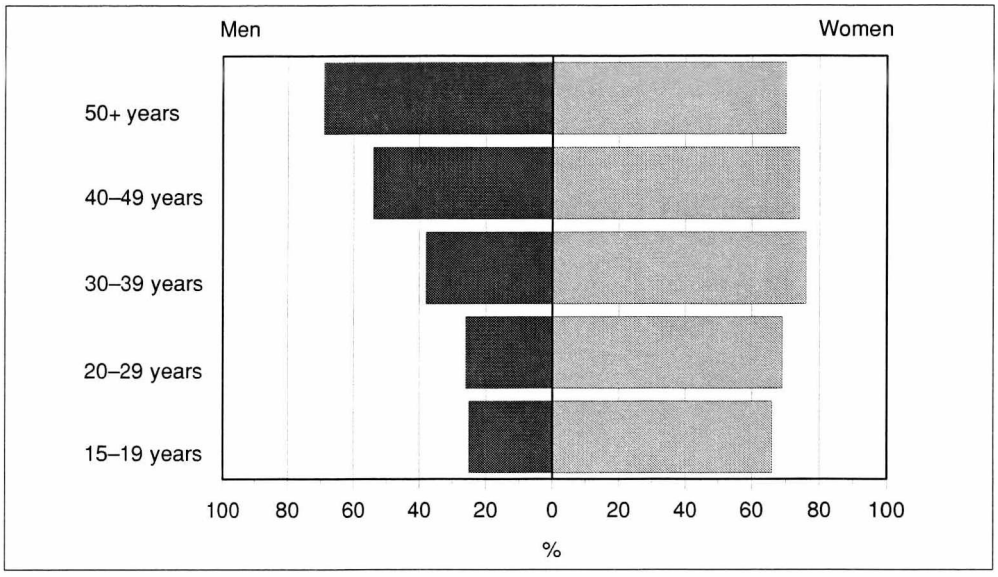


Figure 86. *Proportions of family respondents identifying with the statement "I am a do-it-yourself person", by age and sex, in %*

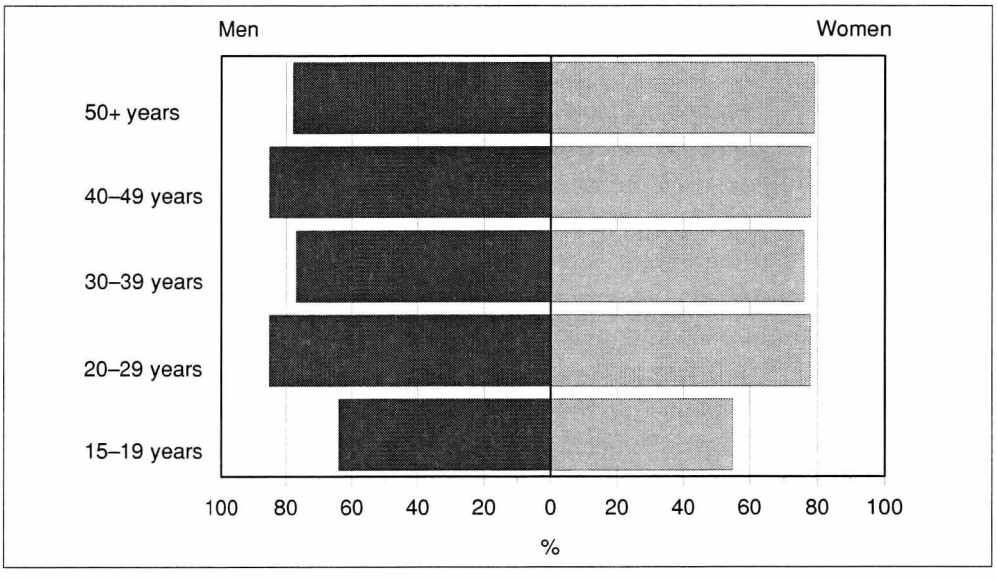
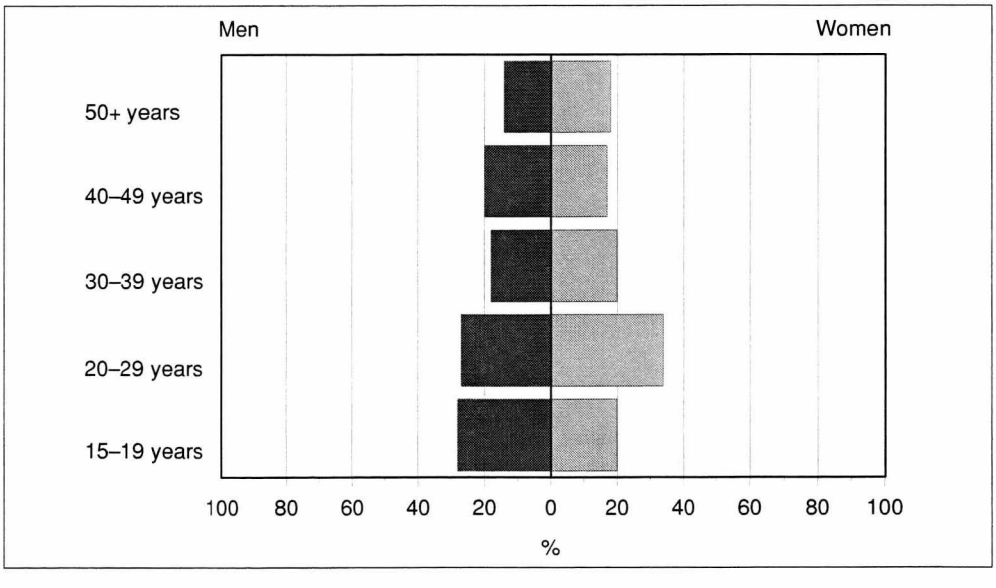


Figure 87. *Proportions of family respondents identifying with the statement "I only purchase new equipment when my friends and relatives have it", by age and sex, in %*



persons identifying well or fairly well with the statement regarding the adoption and purchase of forms of new technology will are indicated in Figs. 84–87.

The family respondents, those aged 10–19 years in particular, were much more interested in new technology than were those from small households, but less interested in social matters and culture. The respondents aged 15–19 years were much less likely to consider themselves do-it-yourself persons than the other categories, with no appreciable differences between families and small households. Families do not feel that their information technology purchases are guided by other people, and are almost equally often content with simple, inexpensive equipment as are small households.

All in all, it may be concluded from the above that families and small households differ appreciably only in terms of the frequency of access to given piece of equipment at home. The household type did not appear to be a major discriminating factor in addition to age and sex as regards the use of such equipment, the related skills or opinions regarding the information society.

5. Regional variations in the use of information technology

Vesa Virtanen

5.1 Information technology from a regional perspective

The transition to the information society is not expected to give rise to major regional changes of the kind that were involved in the transition from an agrarian rural society to an industrial one. It has been said that the regional aspect and distances in general will become unimportant in the information society. It has been uncertain so far whether new information and communications technology characteristically spreads from south to north in Finland or from the towns outwards into the rural areas, or whether the population can be considered equal with regard to its diffusion. This chapter discusses the types of information and communications technology equipment and utilisation skills and experiences reported by households at the end of 1996 on a regional basis. Attention will also be paid to examining whether opinions on information technology differ according to region.

Statistical classifications into regions. The purpose of statistical classifications by regions is to describe regional variation in the phenomena examined and the regional structure of society in general. Regional classifications are usually based on administrative divisions, the most important ones dividing the country into 20 historical provinces and statistically into local government districts. The regional councils, based on the first of these classifications, are important functional and regional bodies that have been responsible for regional development since the beginning of 1994, but most of the sample material discussed here does not allow any conclusions to be drawn at this provincial level, a situation which is true in general for data based on random sampling. A statistical classification which divides local government districts according to settlement structure into urban municipalities (63% of the present material), rural municipalities (13%) and sparsely populated rural areas (24%) describes their level of urbanisation better than does the traditional classification into towns vs. other local government districts, but this again does not lend itself very well for use as a regional classification in the present context, since as many as 2/3 of the households are living in urban municipalities, which form the largest category.

Other classifications generally used for statistical purposes are divisions into major regions (6), administrative provinces (6), sub-regions (88) and commuting areas (198). Local government districts are in turn categorised for various administrative purposes on the basis of cost of living (2 groups), languages spoken (4), type of administration (3) and whether they are entitled to national and/or EU development support. The EU itself has a five-level hierarchical regional classification system of its own (NUTS, Nomenclature des Unités Territoriales Statistiques). These levels are represented in Finland by the dichotomy between the mainland and the Åland Islands (NUTS 1), the division into major regions (NUTS 2), the historical provinces (NUTS 3), the system of sub-regions (NUTS 4) and the local government districts (NUTS 5).

The present report makes use of a classification which divides Finland into areas according to the EU objective programmes that apply to them by virtue of their structural properties or changes taking place in these. The areas are:

- *Objective 2 Areas*, i.e. industrial areas undergoing structural change (e.g. Hamina, Pori, Lahti, Rauma, Jyväskylä)
- *Objective 5b Areas*, i.e. rural areas undergoing structural change (e.g. Raahe, Suonenjoki, Myrskylä, Somero, Virrat) and
- *Objective 6 Areas*, i.e. sparsely-populated areas in Northern and Eastern Finland (e.g. Rovaniemi, Kajaani, Mikkeli).

and by contrast to these, 0 support areas not entitled to regional or structural support, which are divided here into

- *the Helsinki region* (Helsinki, Espoo, Kauniainen, Vantaa) and
- (including the Åland Islands and also Oulu, Tampere, Turku, Vaasa etc.).

Finland possesses six contiguous Objective 2 areas: the west coast, Päijät-Häme, the eastern part of the Gulf of Finland, Southern Karelia, Central Finland and Kokkola, while the 5b areas are located in Uusimaa, Eastern Uusimaa, Varsinais-Suomi, Satakunta, Häme, Pirkanmaa, Päijät-Häme, Kymenlaakso, Southern Karelia, Savo, Central Finland, the coastal areas around Vaasa, Southern Ostrobothnia and Northern

Figure 88. *Locations of the Helsinki region, other EU 0 support areas and EU objective programme areas in Finland*

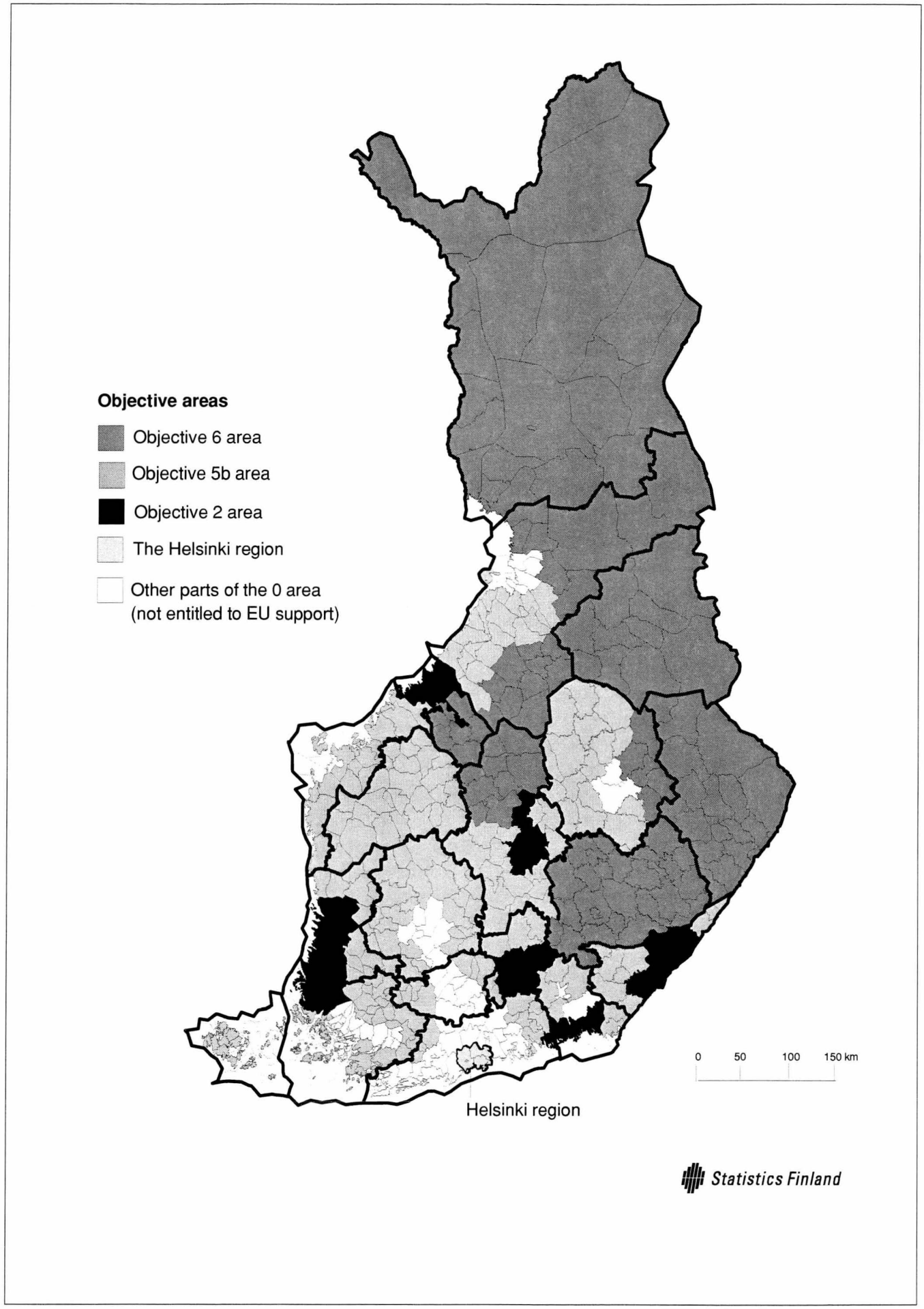


Table 21. *Percentages of households living over 3 km from given services*

	Shop	Kiosk	Cashpoint	Library	Health centre	Built-up area (shopping concourse)
Helsinki region	0	0	3	4	7	6
Other 0 support areas	7	7	12	14	21	23
Objective 2 areas	6	18	15	15	26	27
Objective 5b areas	31	45	42	47	48	45
Objective 6 areas	39	36	40	38	45	50
Total	14	17	21	21	28	29
Number of households	*330 000*	*400 000*	*490 000*	*490 000*	*650 000*	*670 000*

Ostrobothnia. The Objective 6 areas in turn comprise four provinces, Lapland, Kainuu, Northern Karelia and Southern Savo, and parts of four others, the Ii, Siikalatva, Koillismaa and Nivala-Haapajärvi sub-regions of Northern Ostrobothnia, the Koillis-Savo sub-region of Northern Savo, Saarijärvi and Viitasaari in Central Finland and Kaustinen in Central Ostrobothnia. All these areas receive regional and structural policy support. The regional examination of the selection aspect with regard to information technology was likewise directed by the questions in the survey concerned with the respondent's place of residence and access to services of different types. The results will also be presented according to the type of area in which the respondent lives (urban centre - suburban area - other built-up area - sparsely populated area) and at the level of major regions (NUTS 2).

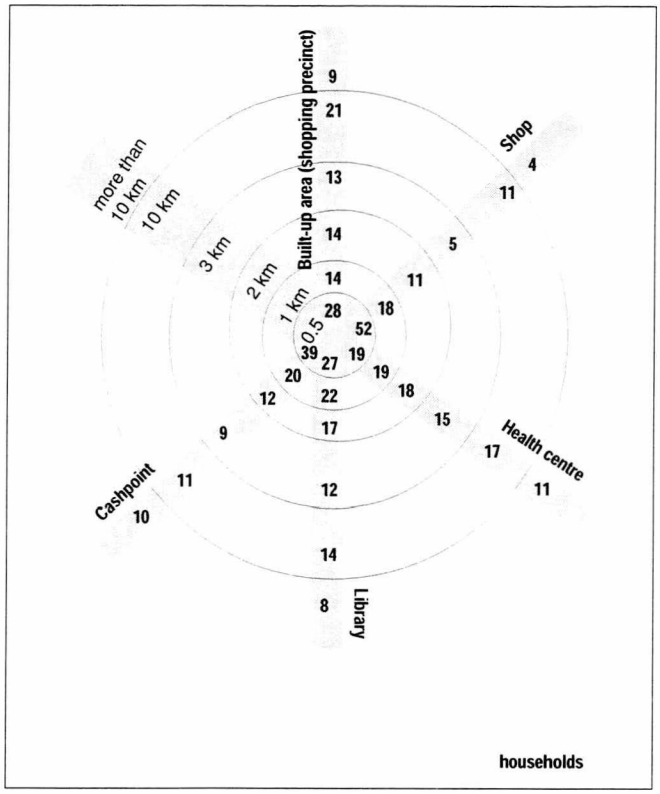
The replies were adjusted to correspond to the population of the above areas, i.e. to all households and household members aged 10–74 years (see Appendix Table 31). The section on equipment resources sets out from the notion of the household, and regional differences in population structure were standardised by looking at small households (1–2 persons) and families (3+ persons) separately, while the use made of information technology, mastery of it and opinions regarding it were examined in two age categories, young people (10–30 years) and older people (over 30 years). The characteristics of the various regions will be compared briefly below, together with features which emphasise regional similarities or dissimilarities. The alternatives and classifications for many of the variables were dichotomised due to the small amount of material available, in order to achieve at least fairly reliable regional comparisons. For this reason, it is difficult in some cases to refer to the detailed classifications found in the other parts of this report.

In addition to the classification into EU support areas, the Appendix Tables 22–30 present data analysed by type of built-up area and major regions (NUTS2).

Background to selection at the regional level. According to the material examined here, slightly less than one fifth (19%) of the total of 2.3 million households are located in the Helsinki region and one fourth (28%) elsewhere in the 0 support areas, i.e. less than a half of all households (47%) lie outside the EU support areas. Meanwhile, approximately one sixth (16%) are located in Objective 2 areas (change in industrial structure) and Objective 6 areas (sparsely populated areas in Northern and Eastern Finland) and one fifth (20%) in Objective 5b areas (change in rural structure). In addition to this, the areas differ considerably in terms of the size of the households, small households (1–2 persons) making up a considerable proportion of those in the Helsinki region (74%) and the Objective 2 areas (70%), while the number of larger households is greater elsewhere, i.e. in the 0 areas (66% small households), the Objective 5b areas (61%) and the Objective 6 areas (59%). The category with the highest population, the other 0 support areas, comprises a total of some 650 000 households and that with the smallest population, the Objective 2 areas, has some 360 000 households (see Appendix Table 22).

The interview questions were concerned with place of residence, type of area and such matters as distances from basic services. One fifth of the households (23%) lived in a city centre, the largest proportion, 39%, in suburbs or on the outskirts of a town, slightly less than a fifth (19%) in built-up areas or rural centres, and 19%

Figure 89. Access to services/household, %



in sparsely populated or village-type areas (see Appendix Table 23).

Of the major regions (NUTS2), Southern Finland is the largest in terms of the number of households (36%), followed by Uusimaa (28%), Eastern Finland (13%), Middle Finland (13%) and Northern Finland (10%). Southern Finland possesses over 800 000 households and Northern Finland over 230 000 (Appendix Table 24).

As some services are already being made available through information networks, their expansion cannot rely solely on the small amounts of information technology equipment at present available in households. The ability of the individual areas to offer information technology services outside the home can be described by means of a table which indicates distance to the nearest food shop, kiosk, cashpoint, library, health centre and built-up area. A more detailed classification is employed in Table 89.

If information technology services were available through special points outside the home, their accessibility would differ greatly from one geographical area to another. Where almost all persons in the Helsinki region would have access to these within a moderate distance (here less than 3 km), one third or almost a half of the households in the Objective 5b and 6 areas would have to travel over 3 km to reach these. The distances were systematically greater for the large-sized households.

5.2 Possession of modern information and communications technology, by region

This section discusses the information technology resources available to households in different parts of Finland. The results will be presented with respect to the above regional levels and sizes of household.

As stated in the report "The Finns and modern information technology" (Nurmela 1997a, 13–18), the mobile phone has overtaken the computer in popularity even though it has only been available for a short period of time. Its rapid advance has even been compared with the spread of the car, although the mobile phone has in fact spread even more rapidly, since by no means all families of at least 3 persons have a car even today. The mobile phone can be expected to become more common than many other household appliances in a number of household types in the current decade.

The car is a good reference object for regional comparisons of information technology. Representing an old form of technology, it has a regional dimension of its own, as it is used to shorten or even eliminate geographical distances in the same way as most of the technological devices to be examined here. One third of the households, and slightly less than a half of the small ones (44%), reported that they have no car, the trend being most common in the Helsinki region (51%) and least so in the Objective 5b areas (rural areas undergoing structural change), where the figure was one third. This points to a notable difference with respect to families of at least 3 persons, for apart from the Helsinki region, where 12% do not have a car, the car was extremely common as a family amenity, especially in the rural areas affected by structural change (Objective 5b areas) and the sparsely populated areas in Northern and Eastern Finland (Objective 6 areas) (Appendix Table 22). Thus the most remote areas of Finland would appear to occupy the most prominent position in terms of technical development in this respect.

Do long distances, which call for technical aids to facilitate movement, also promote the use of information technology to facilitate other aspects of life? Or is the spread of modern technology following the region pattern characteristic of an innovation, i.e. is the direction of expansion from the centres to the peripheral areas?

The computer and mobile phone in regionally distinct development cycles. The regional dimension is reflected in the frequency of computer ownership in particular, and also in that of the mobile phone. Home computers were much more common in families than in

small households (Appendix Table 22), as 63% of the former and 83% of the latter reported that they did not have one. Computers seem to have spread especially among families with children, whereas pronounced regional differences exist in the case of households with 1–2 persons, where computers were most numerous in the Helsinki region, although even there 62% of the households, representing slightly less than 300 000, reported that they did not have a computer at home. On the other hand, the computer had not spread to the sparsely populated areas of Northern and Eastern Finland (Objective 6 areas) at the rate recorded for the rest of the country despite the problem of long geographical distances experienced there, since 87% of these households, representing over 300 000, reported that they did not have a computer (Fig. 90).

The home computer was most common in the suburban areas, next most common in town centres and built-up areas and by far the least common in the sparsely populated areas irrespective of household size. In addition to areas of the latter kind in Northern and Eastern Finland, those located elsewhere in the country also seem to be falling behind in the adoption of information technology, at least as far as home computers and the other related functions to be discussed below are concerned. Thus it must be said that, at least so far, information technology, in the form of personal computers, has not been able to compensate for long distances (Fig. 91).

The situation with the mobile phone was completely different. Where small households in particular differed considerably in terms of possession of a home computer, only minor differences were recorded in the frequency of mobile phones. Of all the households examined according to EU support area, 55–59% had no mobile phone, a situation that it would seem to be as common in the industrial areas undergoing structural change as in the Helsinki region. In addition, all the differences were small. The Objective 6 areas do not stand out from the others in terms of mobile phone ownership to the extent that they do with respect to computers. People living in sparsely populated areas are thus just as likely to purchase mobile phones as those living in other areas. Some 1.3 million households in Finland did not have a mobile phone in November 1996, the figure being 250 000 in the Helsinki region, slightly less than 400 000 in the other 0 support areas, 300 000 in the Objective 2 areas, 270 000 in the Objective 5b areas and over 200 000 in the Objective 6 areas.

Computers and peripherals. As 3/4 of households did not have a computer (62–87%), modem and e-mail connections were also rare. These forms of communi-

Figure 90. *Access to a home computer and mobile phone, by EU Objective area, % of all households*

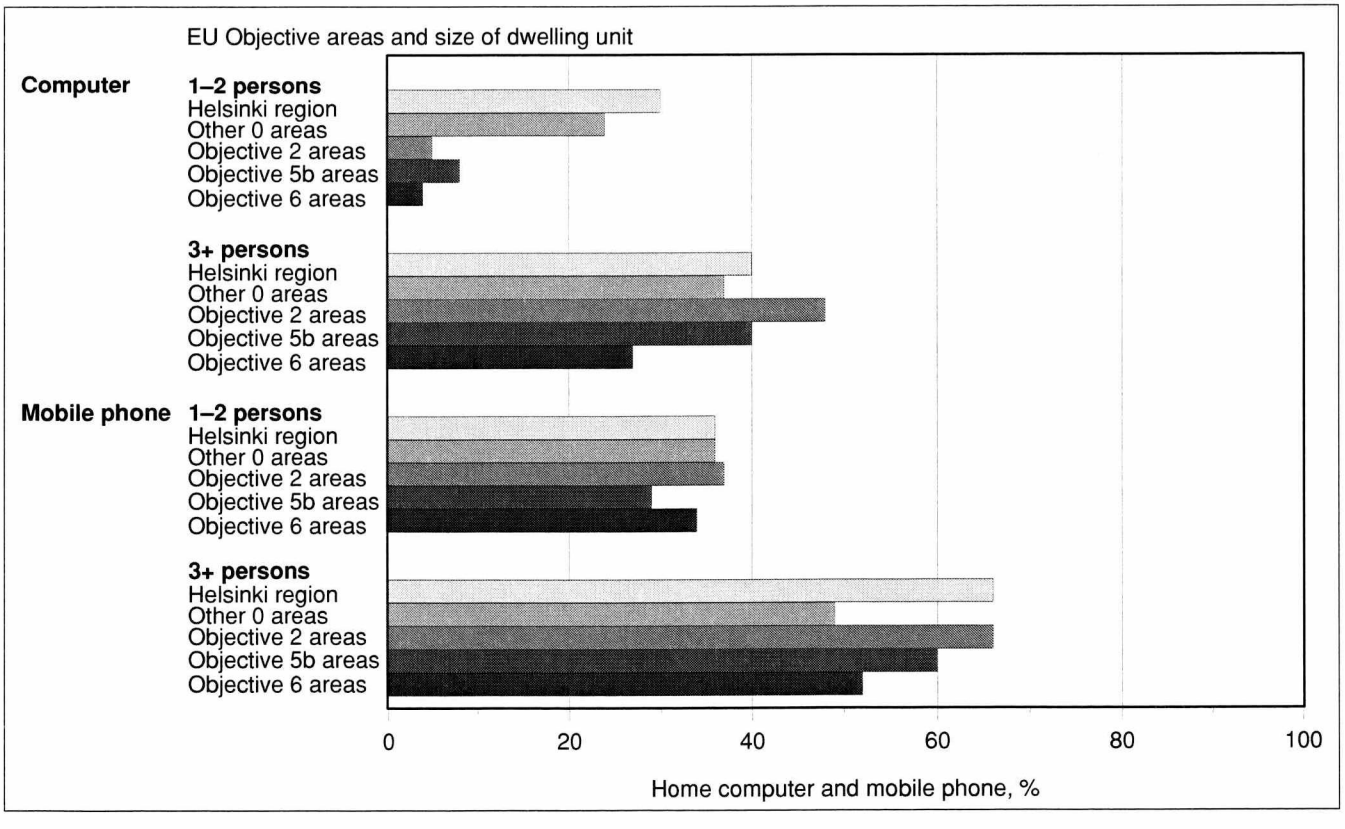
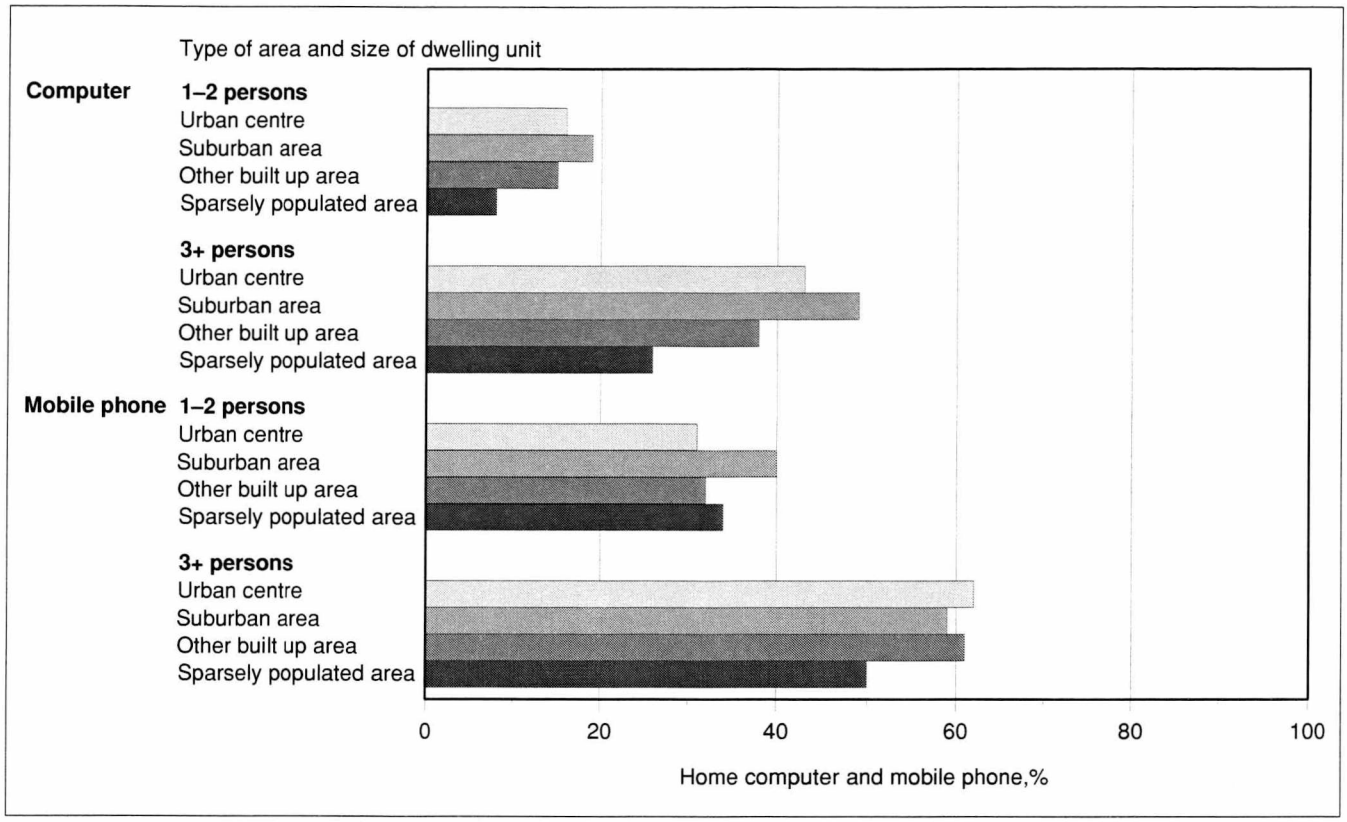


Figure 91. Access to a home computer and mobile phone, by type of living area, % of all households



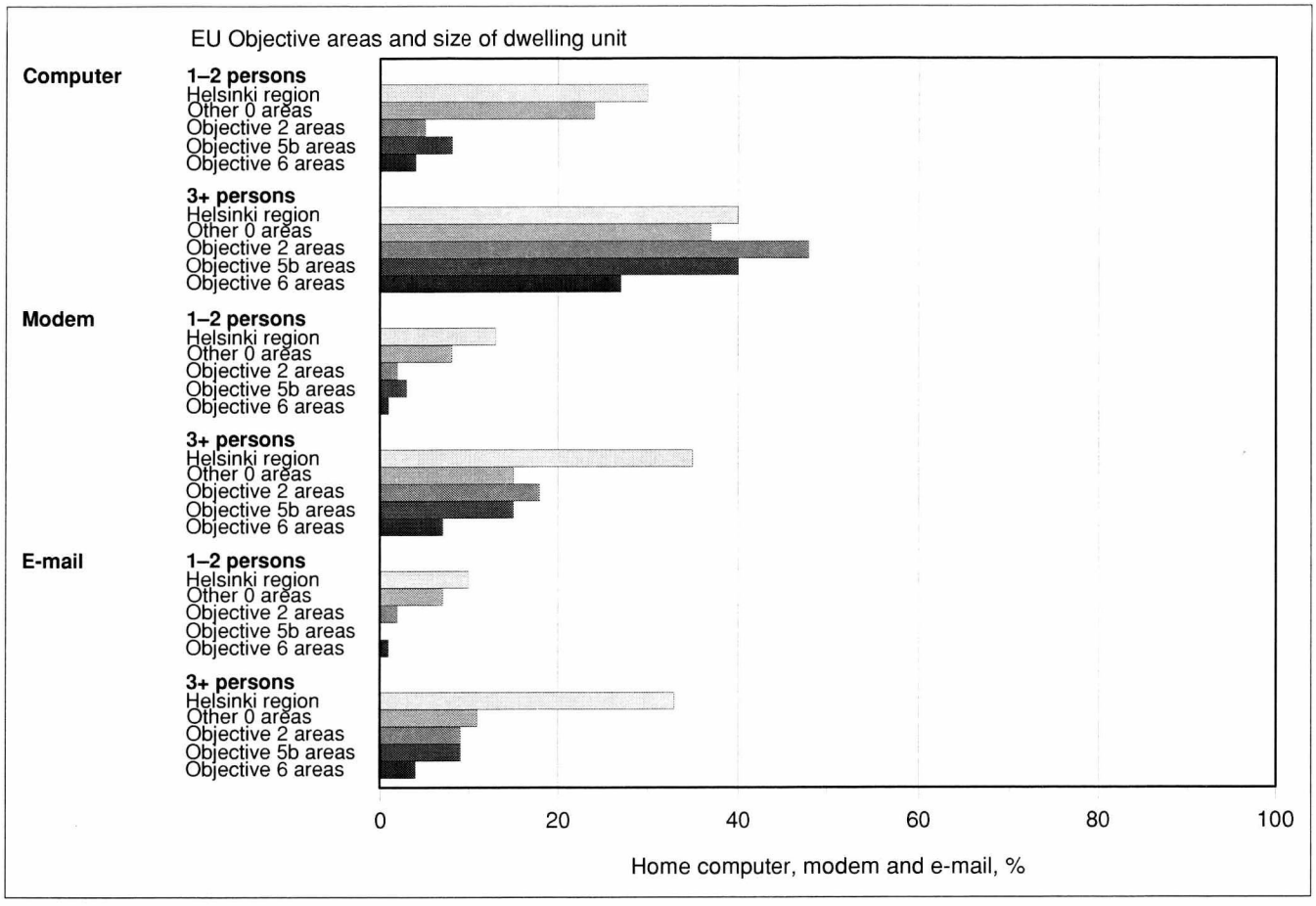
cation would seem to be most common by far in the Helsinki region where as many as one third of the families had access to them (modem 35%, e-mail 33%), whereas the corresponding figures for the rest of the country were only in the range 3–11%, the number of modems being smallest in the sparsely populated areas (Fig. 92 and Appendix Table 23).

TV, video and CD player. Possession of a TV, video recorder and CD player was common in families, with only minor regional differences. Of the small households living in Objective 2, 5b and 6 areas, 9–11% reported that they had no TV, although all the families had one. A television was least common in households located in central areas, while a video recorder and CD player were almost equally common in small households, but slightly less so in those located in the 5b (rural areas undergoing structural change) and 6 areas (sparsely populated areas in Northern and Eastern Finland). These two appliances, the CD player in particular, were far more common in the Helsinki region than elsewhere (Fig. 93).

The remote controller, teletext facilities and other TV accessories as a gateway to new information and communications technology. Remote TV controllers are nowadays almost equally common in small households and families, with no appreciable regional differences (Fig. 94). Almost all families in the Helsinki region have one, whereas one family out of ten in the other parts of the country did not. One third of the small households did not have one (32% in the Objective 2 areas), though no appreciable differences were observed between household size categories. Teletext facilities have not yet become part of the everyday lives of small households, however, as slightly less than a half (43%) still did not have access to these. Small households did not differ in this respect, and the normal differences were recorded between larger households in the Helsinki region and the Objective 5b and Objective 6 areas, i.e. such facilities were most common in Helsinki and its surroundings. One quite a surprising trend was perhaps the much more common occurrence of TV accessories (the remote controller and teletext facilities) in both small and large households in the sparsely populated areas than in the town centres. This may be partly attributable to the age structure of the population of the centres (a mixture of young and old people). The sparsely populated areas of the country can be said to be anchoring themselves into the information society of today more by means of the TV than the computer, for example (Appendix Table 23).

Cable TV or a satellite antenna was more common in

Figure 92. Access to a home computer, modem and e-mail, by type of EU Objective Area, % of all households



the Helsinki region and elsewhere in the 0 support areas, especially among families. Approximately a half of the households living in these 'white areas' had access to satellite channels, which were available to only a few of the people living in the Objective 2 areas and particularly the Objective 5b and 6 areas. Access to cable or satellite networks was almost as common in small households living in the Objective 2 areas as in the Helsinki region or elsewhere in the 0 support areas. In the 5b and 6 areas, however, access was reported by only one fourth of the families and one fifth or less of the small households. It should be noted, however, that their frequency is influenced by the fact that most of the people in the Helsinki region live in terraced houses or apartments (86%), as opposed to two out of three of those in the 0 support and Objective 2 areas (62%), two out of five of those in the Objective 6 areas (39%) in apartments and no more than one third (34%) of those in the 5b areas in terraced houses or apartments. Apartment blocks in particular offer better opportunities for making use of satellite or cable connections than do private houses, which may be the reason why households living in remote areas are less likely to have access to these.

Use of information and communications technology at home and outside it. We will discuss here the extent to which people use information and communications technology at home, at work, at school and for studying purposes. Attention will be paid to regular home use, access to a computer at work, and mastery of computer programs (e-mail, Internet, word processing and graphics programs). In addition, home and leisure time use of the phone will be compared in regional terms on the basis of the numbers of calls made or received. Jobs will also be compared at this level with respect to the role of the telephone in them. Teletext facilities, cash or credit cards and mail order shopping, for example, will be examined as other forms of gateway to modern information and communications technology. Regional differences in population structure will be standardised at least to some extent by analysing the material in age groups.

Information on the respondents' experiences with the use of information and communications technology will be mostly presented relative to the population of a certain area or a certain age group irrespective of the number of persons with access to a given appliance, program or service. The number of persons having used

Figure 93. *Access to a TV, video recorder and CD player, by type of EU Objective area, % of all households*

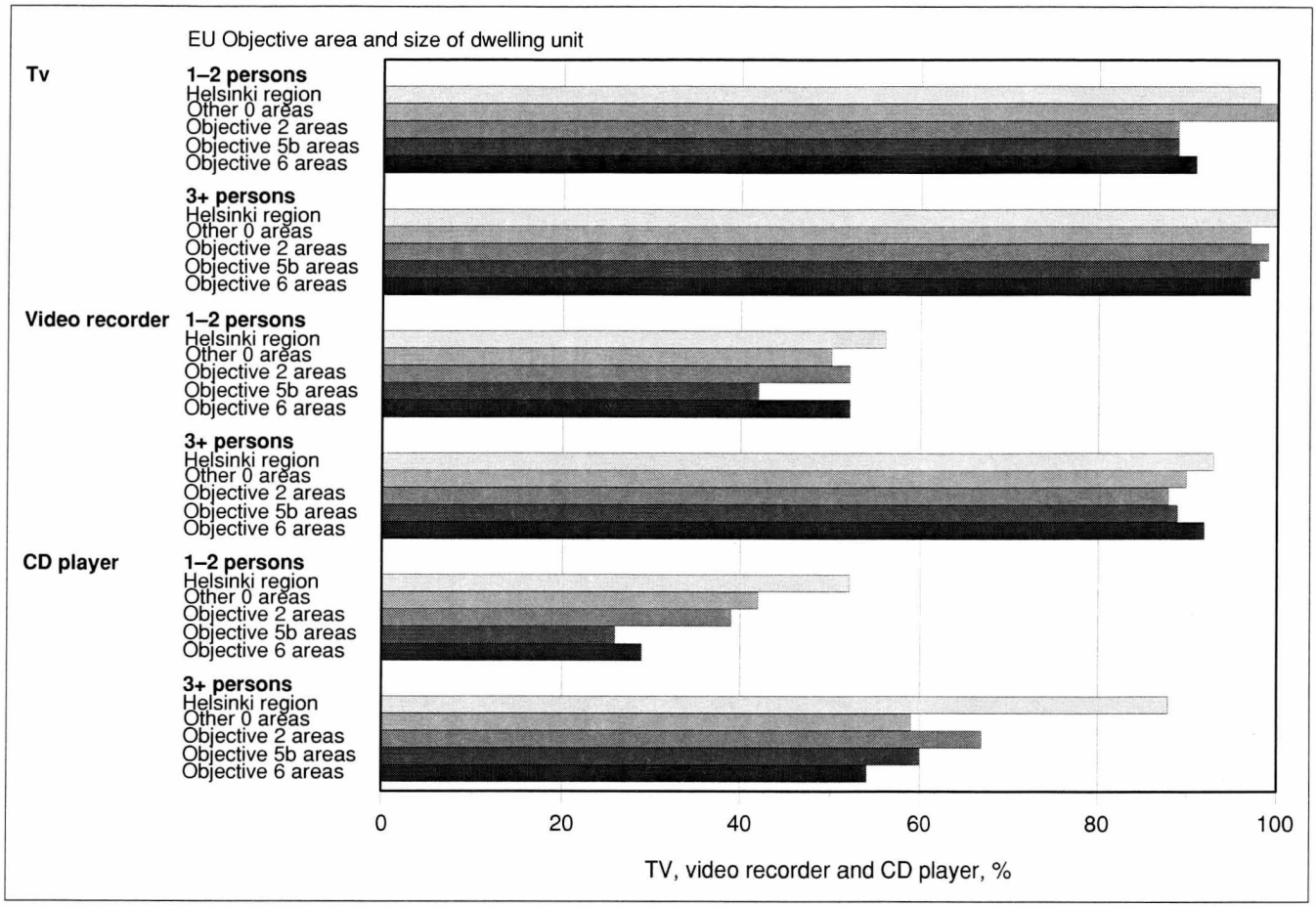


Figure 94. *Access to a remote controller and teletext facilities, by type of EU Objective area, % of households*

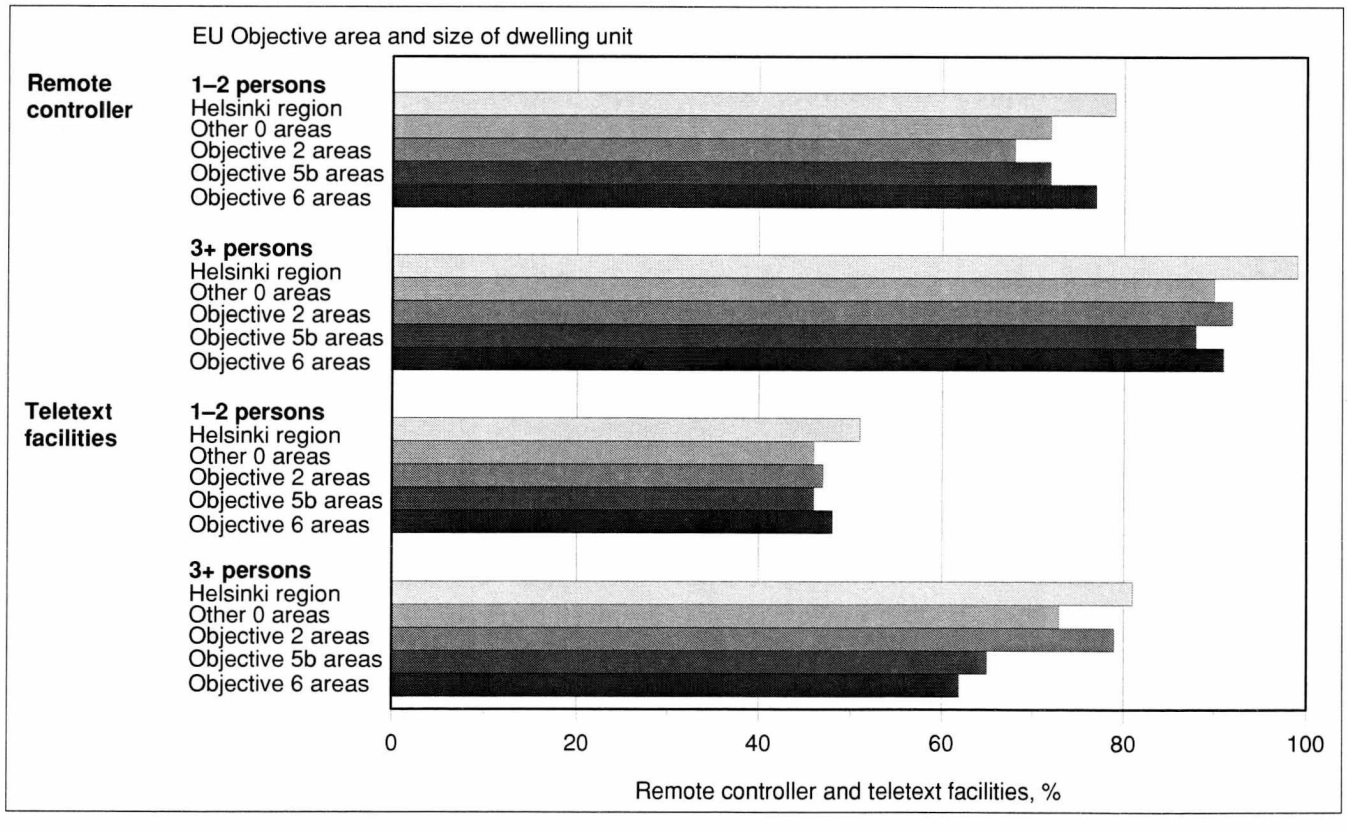
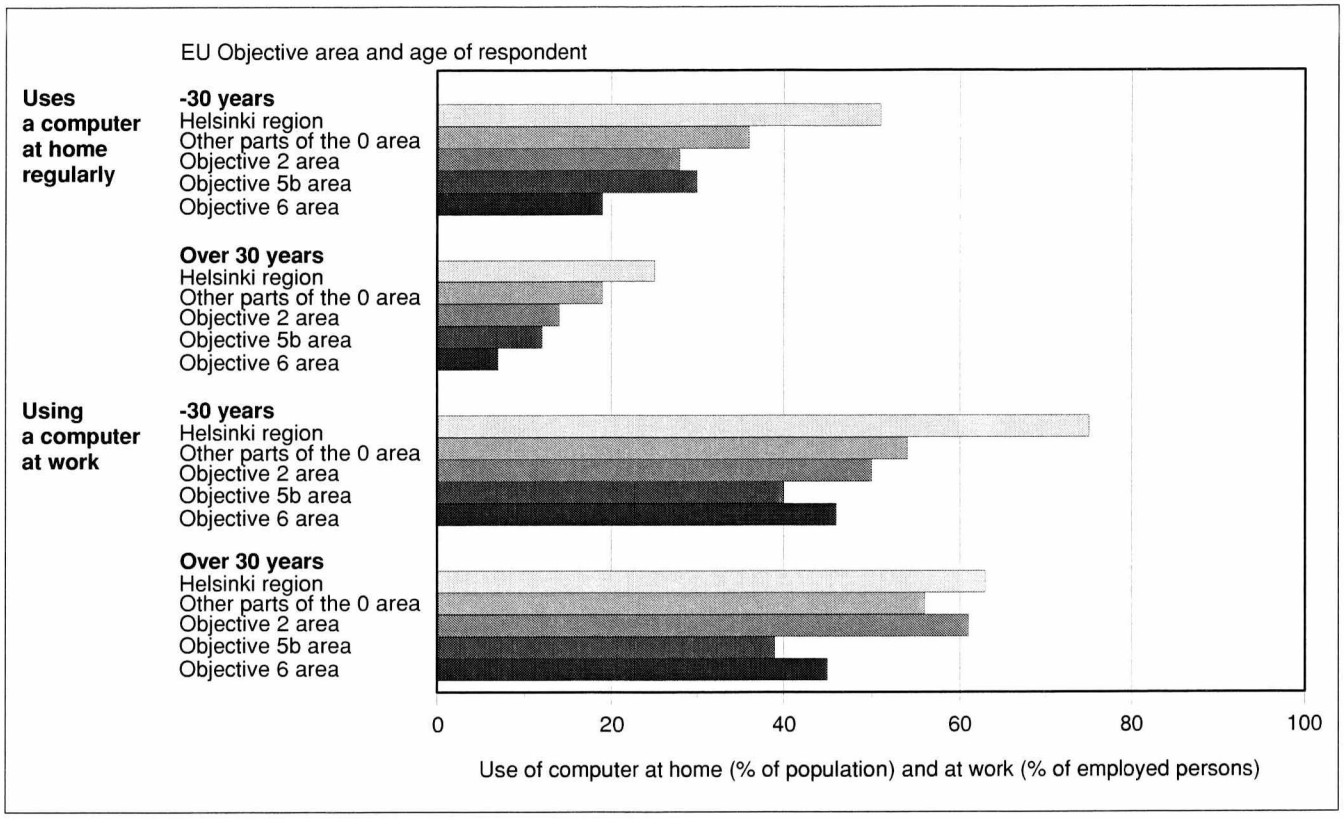


Figure 95. Regular use of a computer at home and at work during the past 6 months, by age and EU Objective area, in %



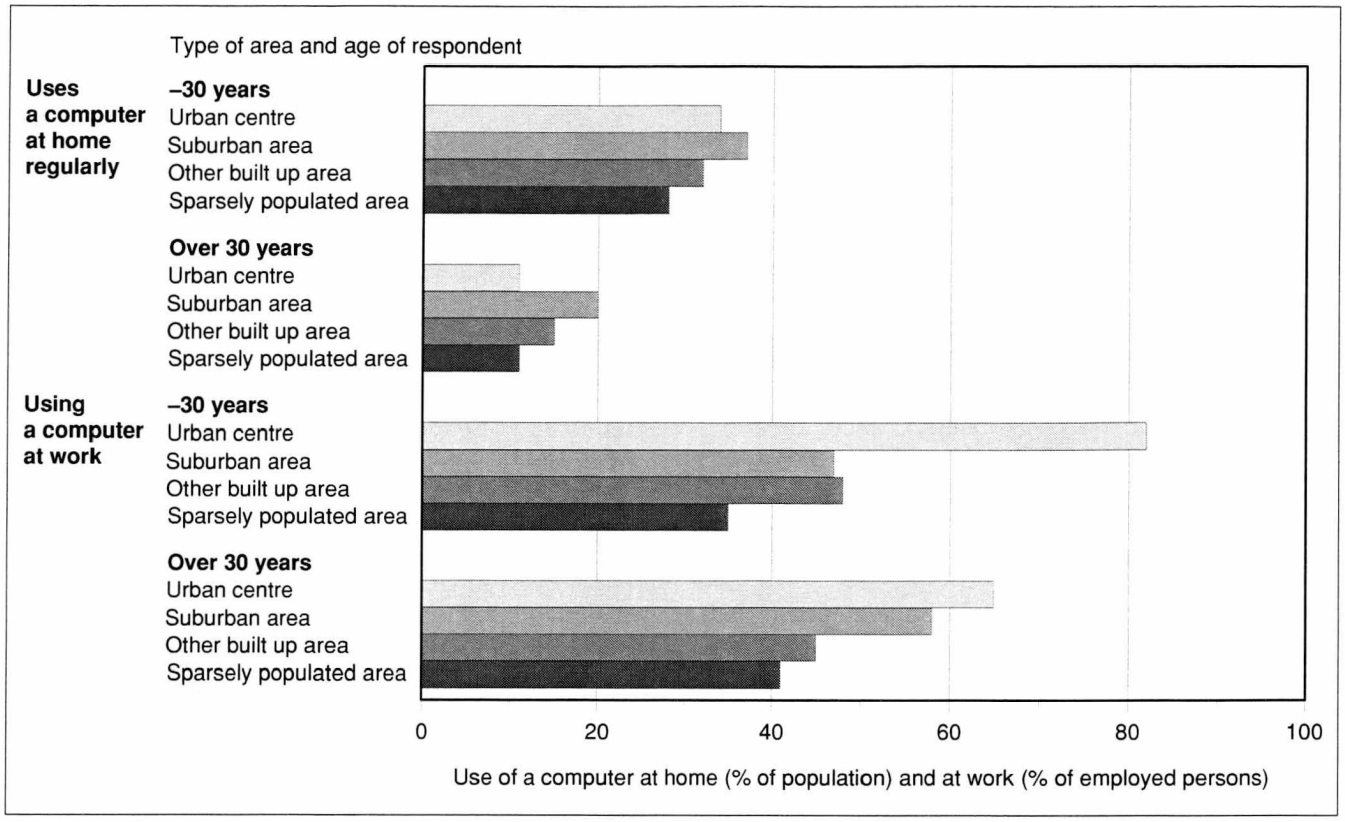
the Internet, for example, will thus be examined relative to the total number of persons falling within the population category, not just those with a computer or those using a computer. The resulting percentage will be used to describe the way in which modern information and communications technology selects the population of a given area as a whole as its users.

Use of the computer at home and at work. Young people were much more likely than the older respondents to have used a home computer regularly during the 6 months preceding the interview. It should be noted, however, that persons aged over 30 years and living in the Helsinki region were already more active in this respect than were young people aged 10–30 years in the sparsely populated areas of Northern and Eastern Finland. Regular use was most common in the Helsinki region, fairly common elsewhere in the 0 support area and in the industrial and rural areas undergoing structural change, and least common in the sparsely populated areas of Northern and Eastern Finland (Appendix Table 25). The regional differences among the young people were surprisingly great, so that where 51% of the respondents aged under 30 years in the Helsinki region were already using a computer regularly, the figure in the Objective 6 areas was no more than 19%. Similarly 25% of those aged over 30 years in the Helsinki region reported using a computer regularly, the figure elsewhere in the 0 support area was 19% and that in the sparsely populated areas of Northern and Eastern Finland only 7%. Use of a computer was most common in suburban areas and least common in sparsely populated areas (Figs. 95, 96 and Appendix Table 26).

The examination of computer use at work covered all persons with access to a personal or shared computer, who were related here to the employed population as a whole in order to allow comparisons in relative terms between the workplaces in a given area. No such division will be made regarding people's skills in using computer programs, but attention will be paid to the command of computers at schools and places of study.

The use of computers at work does not follow the same pattern as home use. On average one half of the Finnish population work with a computer in one way or another either alone or with other people, but regional differences are great in this respect, so that where three out of four employed persons under 30 years of age in the Helsinki region were using a computer at work, the figure was only 40% in the rural areas undergoing structural change. Similar differences were observed among persons aged over 30 years, though these were not as prominent as among young people. Two out of three persons aged over 30 years in the Helsinki region (63%) were using a computer at work, but only two out of five (39%) in rural areas undergoing structural change. This selection gains further support from the situation in dif-

Figure 96. Regular use of a computer at home and at work during the past 6 months, by age and type of living area, in %



ferent types of living area, the results indicating that the majority of young people living in urban centres (82%) are already using a computer at work, but only 41% of those in sparsely-populated areas. It may be concluded from the above that there are indeed major regional differences in the use made of computers at home and at work.

Mastery of computer programs. Do people know how to use their computers? We will examine this question below with respect to their command of Internet, e-mail, word processing and graphics programs. The questions on this topic did not take note of where the respondent had used a particular program or learned how to use it. Mastery here denotes at least some degree of knowledge or ability.

Word processing was the most common type of function mastered, and graphics the next most common. A smaller number of the respondents were able to use e-mail or an Internet browser. The programs concerned have been available for different periods of time, so that many of the respondents may not have had access to new programs at all. Where at best three out of four (74%) young people (10–30 years) in the Helsinki region are able to use word processing programs, only 7% of persons aged over 30 years in Northern and Eastern Finland are able to use the Internet, the most recent gateway to new information and communications technology (Fig. 97 and Appendix Table 25).

Major differences were observed between the types of program and between the age categories. Respondents aged over 30 years differed greatly in regional terms, while no alarming differences were observed between those aged under 30 years as regards their use of word processing and graphics programs. There were still differences in the percentages between the Helsinki region and the other geographical areas in this respect, though the numbers of word processing and graphics program users was already so great that these cannot be considered significant. In addition, minor differences were recorded between the regions. The 0 support area (the Helsinki region and others areas) differed fairly clearly from the rest of Finland in terms of e-mail and Internet use, at least for the time being, in that a half of the persons aged under 30 years in the Helsinki region reported that they are able to use the e-mail as opposed to only 19% in the rural areas undergoing structural change. Smaller differences were observed in the use of the Internet in the latter areas, where as many as 26% in the above age category already reported such skills, as opposed to 50% of those living in the Helsinki region. Although the differences were great in regional terms, they can be expected to narrow as information technology becomes more common. The above differences are more prominent when the situation is examined with respect to the type of area in which the respondents were

living, in that urban centres and suburbs differ considerably from sparsely populated areas for respondents of all ages (Appendix Table 26). E-mail and the Internet have not so far improved the availability of services in remote areas. In spite of regional differences, one should not forget that at the time of the interview in November 1996, Internet skills were reported by over 200 000 persons in the Helsinki region, for example, almost 300 000 in other 0 support areas, over 100 000 in industrial areas undergoing structural change, some 130 000 in rural areas undergoing structural change, and almost 100 000 persons even in the sparsely populated parts of Northern and Eastern Finland.

Use of the phone at home and at work. The regional differences in the use of traditional communications tools such as the telephone were not as great as those regarding computer programs. The age category 10–30 years in the Helsinki region differed from the rest of the country in terms of telephone use at home (including leisure time calls) and at work, but among persons aged over 30 years there were no appreciable regional differences in this respect. Telephone use was more common in urban centres than in sparsely populated areas in all the age groups, but more so on average among young people.

Where four out of five people aged under 30 years (79%) reported making over 10 calls a week from home or in leisure time in the Helsinki region, the figure was only two out of five (43%) in rural areas undergoing structural change. In industrial areas undergoing structural change the population aged over 30 years were even more active in this respect than those living in the Helsinki region, nor did the structural differences between the regions repeat themselves in the way they did in the case of experiences with using computers. Approximately a half of the Finns make more than 10 leisure time calls a week (Fig. 98).

As many as 75% of the young employed people in the Helsinki region perceived the phone as an essential working tool (either a primary tool, spending more than a half of their working time on the phone, an essential part of their work or a means for maintaining contacts), while this was only reported by one third in the Objective 6 areas. This difference of 41 percentage points is reduced to a mere 14 among persons aged over 30 years.

Figure 97. *Persons with at least some knowledge of e-mail, Internet, word processing and graphics programs, by age and EU Objective area, in %*

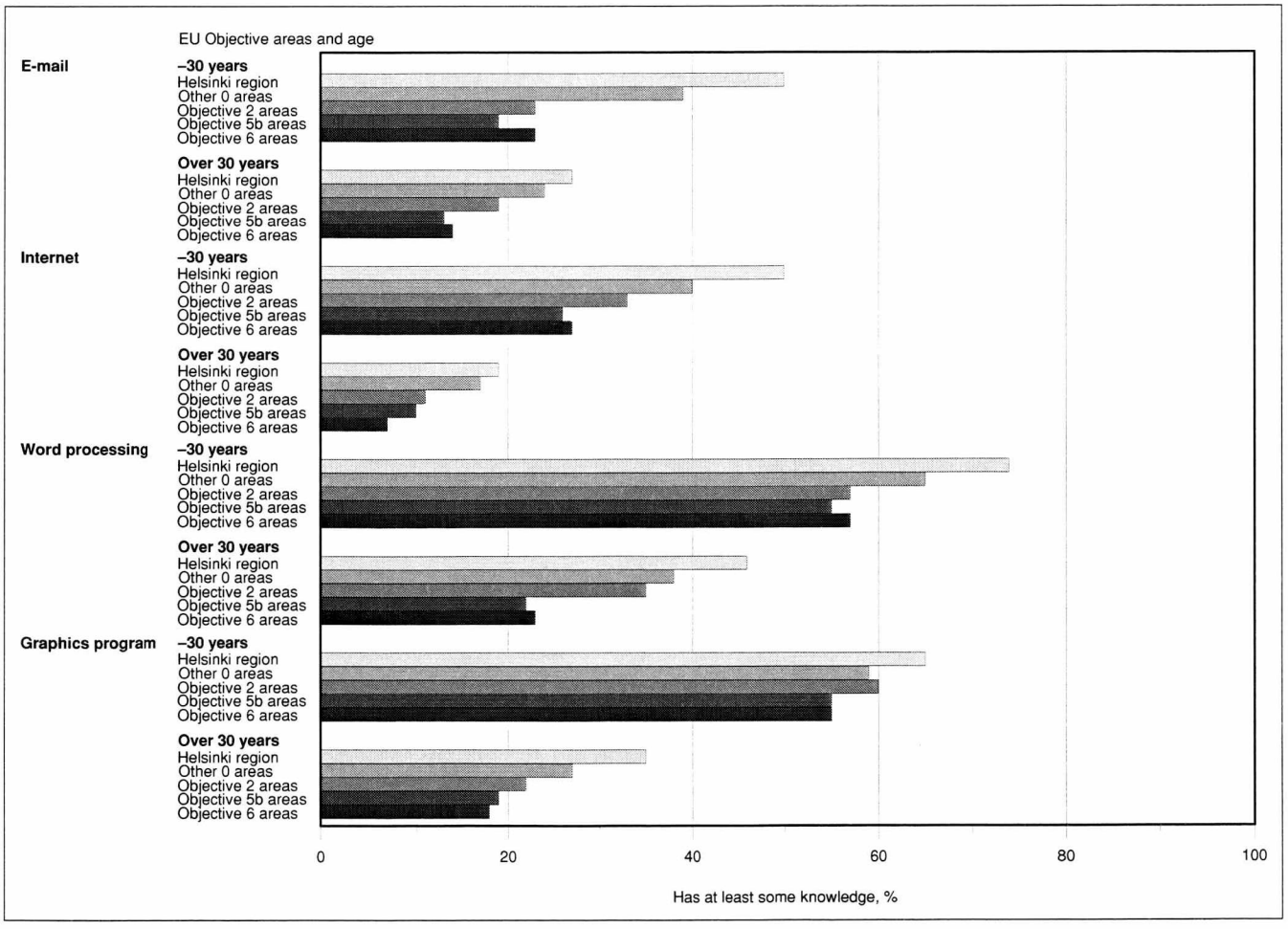
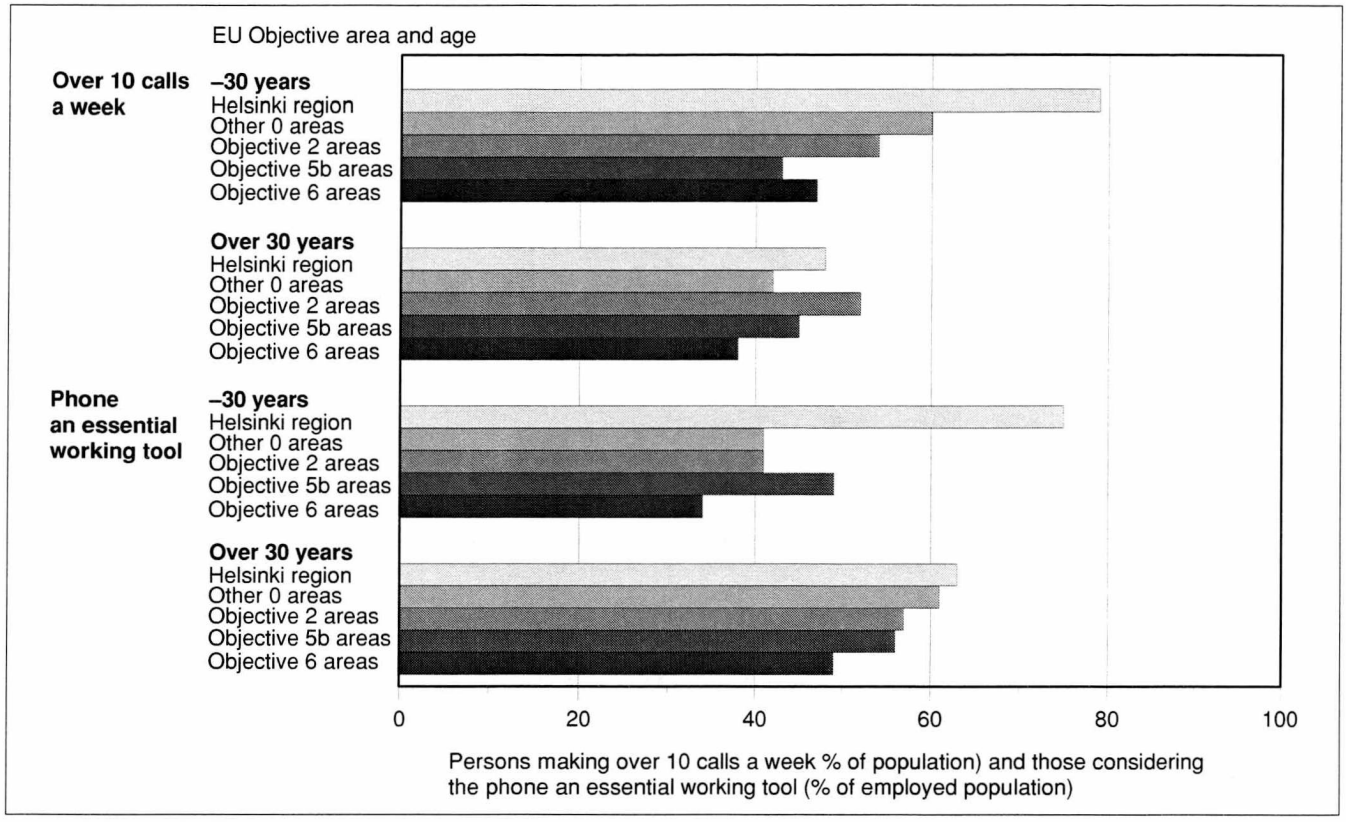


Figure 98. *Persons making over 10 calls from home a week and considering the phone an essential working tool, by age and EU Objective area, in %*



In fact, the frequency of using the telephone at home and at work among the young people in the Helsinki region was the most striking regional feature observed here. No appreciable regional differences were observed among persons aged over 30 years in this respect.

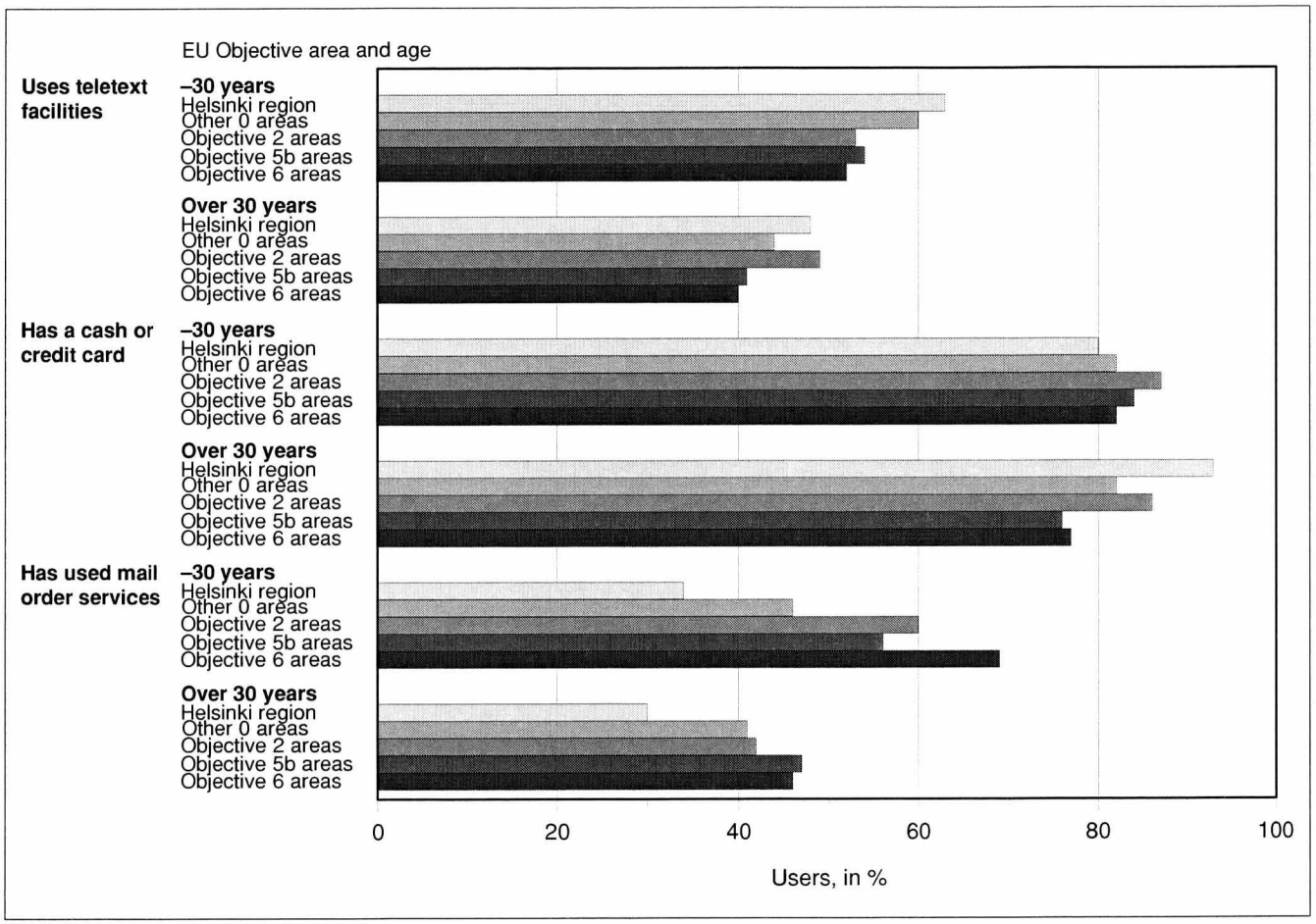
Regional trends in the use of other services, such as teletext facilities, cash cards and mail order supplies. Other functions connected with the use of information and communications technology are teletext facilities, cash cards, credit cards and mail order shopping, which will be examined below with respect to their popularity in the regions. The figures obtained also indicate the use of these facilities in relation to the population of the regions concerned. Young people in particular showed a different of behaviour with regard to the use of cash cards, credit cards or other corresponding means of payment from that noted in the case of computers and telephones, and this was true of both age categories where mail order shopping was concerned. Use of mail order services (at least once) does not seem to follow any particular distance profile, so that young people living in sparsely populated areas in Northern and Eastern Finland, for example, and the population living in the urban centres are equally active in this respect (Fig. 99 and Appendix Table 26).

The use of teletext facilities (at least once) was more common among young people than among those over 30 years of age, being reported by over half of the former and slightly less than half of the latter. No appreciable regional differences were observed. The maximum proportion of persons reporting that they browse the teletext pages was 63%, for those aged under 30 years in the Helsinki region, while the smallest figure, 40%, was recorded for those aged over 30 years living in the Objective 6 areas. Teletext use is more common among people living in suburban areas than elsewhere, an average of 55% irrespective of age category (Appendix Table 26).

No regional or age differences were observed in the use of cash or credit cards either, some four out of five respondents reporting that they had access to these. Minor regional differences were observed in the younger age group, where those living in the Helsinki region seemed to be the least likely to carry a card, i.e. four out of five as opposed to 93% in the category over 30 years. The Finns are generally accustomed to using these cards irrespective of age and geographical location.

The assumption that mail order shopping could well compensate for the relative lack of services in remote areas seemed to hold good, in that over a half of the young people and about two out of five in the category

Figure 99. *Persons having used teletext facilities, those with access to a cash or credit card, and those who had bought things by mail order, by age and EU Objective area, in %*

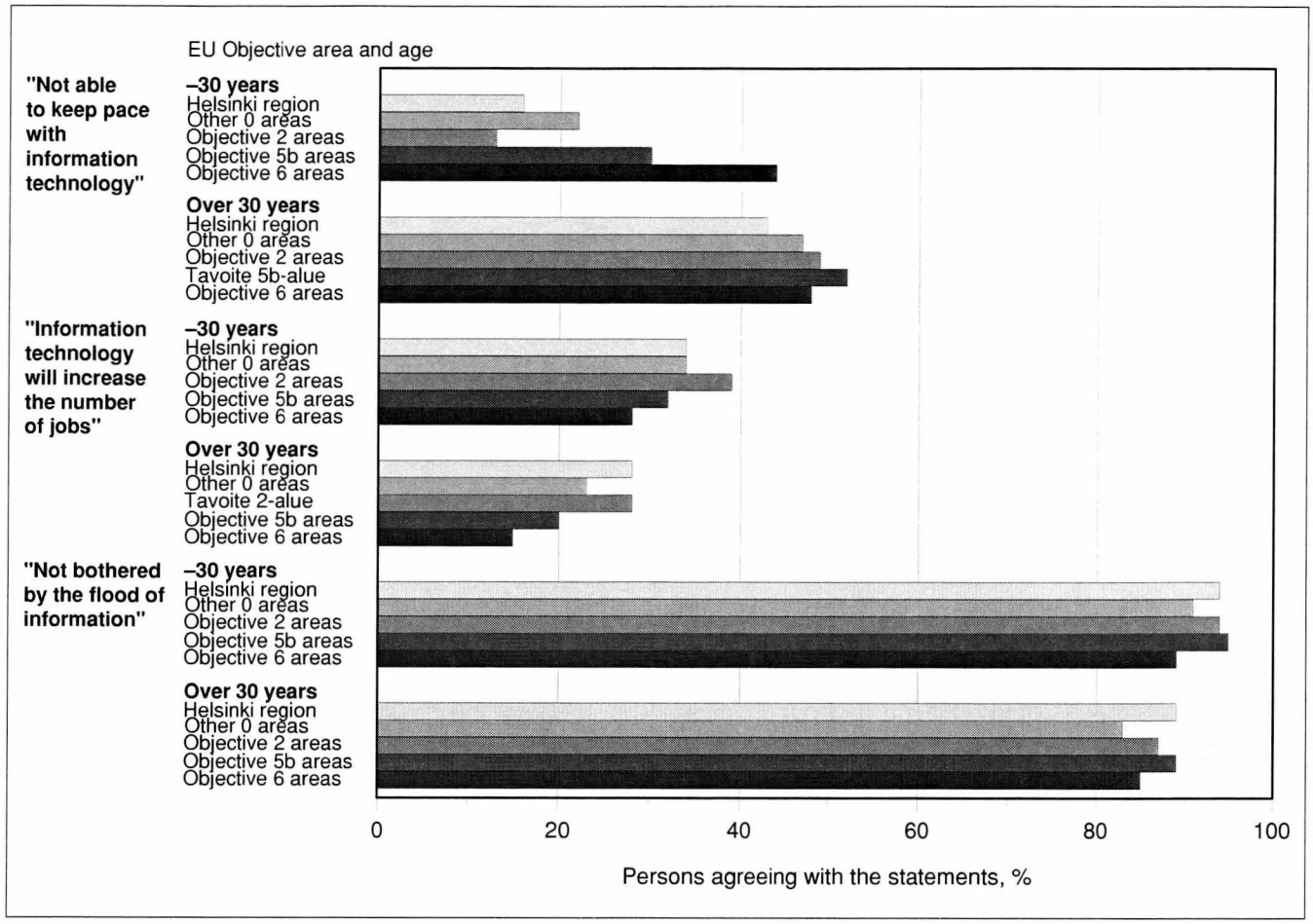


over 30 years in rural and industrial areas undergoing structural change and in sparsely populated areas in Eastern and Northern Finland had ordered articles by post at least once or twice. 69% of the young people living in the Objective 6 areas had done so, but only one third (34%) of those living in the Helsinki region. Of the users aged under 30 years, slightly less than 90 000 were living in the Helsinki region and almost 150 000 in the Objective 6 areas. Examination of the use of teletext facilities, payment cards and mail order shopping indicates that the regions do not necessarily differ in terms of these aspects of information and communications technology, as they would seem to be almost equally common in all parts of Finland.

Regional differences in opinions about the development of information technology. The respondents' opinions about the progress made in information and communications technology and their general or personal attitudes to this varied according to geographical area. The young people also differed considerably from the older ones in this respect (Appendix Table 28), a trend which shows some alarming features. Attitudes towards information and communications technology will be discussed below in relation to the statements "I feel I have not been able to keep pace with the progress of modern information technology at all", "Modern information technology will increase the number of jobs available" and "I am not bothered by the present flood of information." (Fig. 100 and Appendix Table 28).

Perhaps the most alarming feature in the respondents' opinions was that 44% of the young people living in the sparsely populated parts of Northern and Eastern Finland, i.e. a total of 100 000 aged under 30 years, feel that they have not been able to keep pace with the progress of new information technology. Similar results were also recorded for approximately 330 000 persons aged 10–30 years throughout the country. This may be partly attributable to the widely discussed Internet, for example, which may be a major regionally discriminating factor even among young people. Young people living in the Helsinki region (16%) and industrial areas undergoing structural change (13%) seldom agreed with this statement, whereas identification was reported by one fifth of those living elsewhere in the 0 support area (22%) and one third of those in the Objective 5b

Figure 100. *Persons agreeing with the statements on information technology, by age and EU Objective area, in %*



area (30%).

Almost a half of the age category over 30 years, a total of well over 1 million people aged 31–74 years, considered the statement applicable to them, and almost an equal number, some 1.4 million, were of the opposite opinion. The regional differences observed in this age group were not as prominent as those recorded for young people, even though these people were more likely to report feelings of falling behind.

People did not generally agree with the statement that modern information technology will increase the number of jobs available. In fact, only one third of the young people and one fifth of those aged over 30 years identified with the statement. Agreement was reported in particular by young people living in industrial areas undergoing structural change, where two out of five (39%) were of this opinion. For those in the Objective 6 areas the figure was no more than 28%, however, i.e. two out of three disagreed with the statement. Persons aged over 30 years were even less convinced of the matter than were the young people, indicated by the fact that 28% of those living in the Helsinki region identified with the statement but only 15% of those in the Objective 6 area. It should be noted here that ibn terms of the NUTS2 classification (Appendix Table 30), people in Northern Finland agree with this statement more readily than do those living in Eastern and Middle Finland. Quite small differences were observed between the urban centres, suburbs, other built-up areas and sparsely populated areas in both age categories (Appendix Table 29).

The Finns, irrespective of age and place of residence, do not seem to be bothered by the existing flood of information, the majority of them agreeing with the statement as given.

5.3 Summary of regional trends in information and communications technology

The regional aspect has been considered here mainly by comparing geographical areas entitled to EU support and formed essentially on the basis of structural properties. One issue of importance from the point of view of organising information and communications services was that Finnish households typically have all

services fairly close at hand. This is quite evident in that of the total of 2.3 million households, only 330 000 were located more than 3 km from a shop, 400 000 from a kiosk, 490 000 from a cashpoint, 490 000 from a library, 650 000 from a health centre and 670 000 from a built-up area (shopping centre).

The progress of modern information and communications technology varied regionally, with some of the differences concerning not only persons aged over 30 years but also younger people. The areas differed greatly in terms of the availability of a computer at home or at work and people's mastery of different types of program, for example. The Helsinki region was a pioneer in many respects, whereas even the young people living in the sparsely populated areas of Northern and Eastern Finland were unable to keep pace with the progress of information technology. On the other hand, the mobile phone seemed to be spreading to practically all areas. Regional differences were particularly prominent as regards people's knowledge of computers, peripherals and software, and these were also reflected in their opinions on the progress of information and communications technology.

The regional differences seemed to be great among small households in particular. Although computers were most numerous in such households in the Helsinki region, 2/3 of them still did not have access to one. In spite of the large geographical distances affecting most aspects of life, the computer had still not spread to households in the sparsely populated areas of Northern and Eastern Finland (Objective 6 areas) to the same extent as it had in other parts of Finland, so that more than 300 000 of these (87%) still did not have access to one. The Helsinki region was also a forerunner in terms of the number of modems and e-mail connections. The distribution of mobile phones, however, differs completely from that of home computers, as they would seem to be as common in industrial areas undergoing structural change as in the Helsinki region, and even the Objective 6 areas do not stand out here to the extent that they do where computer ownership is concerned, as mobile phones are equally common even in sparsely populated areas.

No appreciable regional differences were observed between families in particular in terms of their access to a TV, video recorder or CD player, while a remote controller for a TV set is almost equally common in small households nowadays as it is in families, with the exception of the Helsinki region, where almost all families had one. In the other parts of the country one household out of ten did not have a remote controller for their television. At this stage the sparsely populated areas seem to be anchoring themselves into the information society more through the TV than through the computer. Cable TV or a satellite dish is more common in the Helsinki region and elsewhere in the 0 support areas, especially in the case of families, as about a half of these households had access to satellite channels, as opposed to only a few households in the Objective 2 area, and still more markedly so in the Objective 5b and 6 areas.

Regular home computer use was most common in the Helsinki region, fairly common elsewhere in the 0 support area and the industrial and rural areas undergoing structural change, and least common in the sparsely populated parts of Northern and Eastern Finland. Surprisingly great regional differences were observed among young people in this respect. The use of a computer at work is particularly common in the Helsinki region, the regional differences increasing towards the younger employees. The areas also differed greatly in terms of the extent to which the computer was used at home and at work. Regional differences of this kind were also observed among persons aged over 30 years as regards their command of computer programs, whereas respondents aged under 30 years were not found to differ to any alarming extent in terms of their word processing and graphics program skills, for example. There is still a major gap between the Helsinki region and the other parts of Finland as regards e-mail and Internet use. E-mail is mastered by a half of the persons aged under 30 years in the former area, as opposed to only two out of five in the rural areas undergoing structural change. The regional differences in Internet use were not as prominent, though they pointed in the same direction.

The areas differed slightly less in terms of their use of traditional communication tools such as the telephone. Persons in both age categories living in urban centres nevertheless reported more active use than those living in sparsely populated areas. Compared with the other parts of the country, young people in the Helsinki region were much more likely to use the phone at home, in their leisure time and at work. Regional differences of this magnitude were not observed among persons aged over 30 years, however. The areas did not differ appreciably in terms of the use made of teletext facilities, either, though they seem to be more commonly used in suburban areas than in other types of living area in both age groups. Cash cards, credit cards and other payment cards were also almost equally common in all areas and both age groups, which suggests that the Finns have become accustomed to using these regardless of age and geographical location. Cash cards were more common among young people than among persons aged

over 30 years, apart from the Helsinki region, where the situation was the opposite.

The young people evidently had a more positive attitude towards information technology and progress in communications media than did the older people. This also entails some worrying features, however, as those living in the sparsely populated parts of Northern and Eastern Finland are most likely to feel that they have not been able to keep pace with the progress of modern information technology (44%), whereas such opinions were only reported by 16% of those living in the Helsinki region. Regional differences of this kind were not as prominent in the older age groups, though these were even more likely to report feelings of falling behind. In general, the respondents were not very much convinced of the ability of information technology to increase the existing number of jobs. Young people living in industrial areas undergoing structural change identified themselves with the statement most readily, i.e. two out of every five, whereas the figure was only 28% for those living in the Objective 6 area, i.e. two out of every three disagreed with the statement. Persons aged over 30 years agreed with the statement less readily than did the younger people. Positive responses to the statement were most common in the Helsinki region, but dropped to a mere 15% in the Objective 6 area.

6. Increases of modern information and communications technology in households over one year

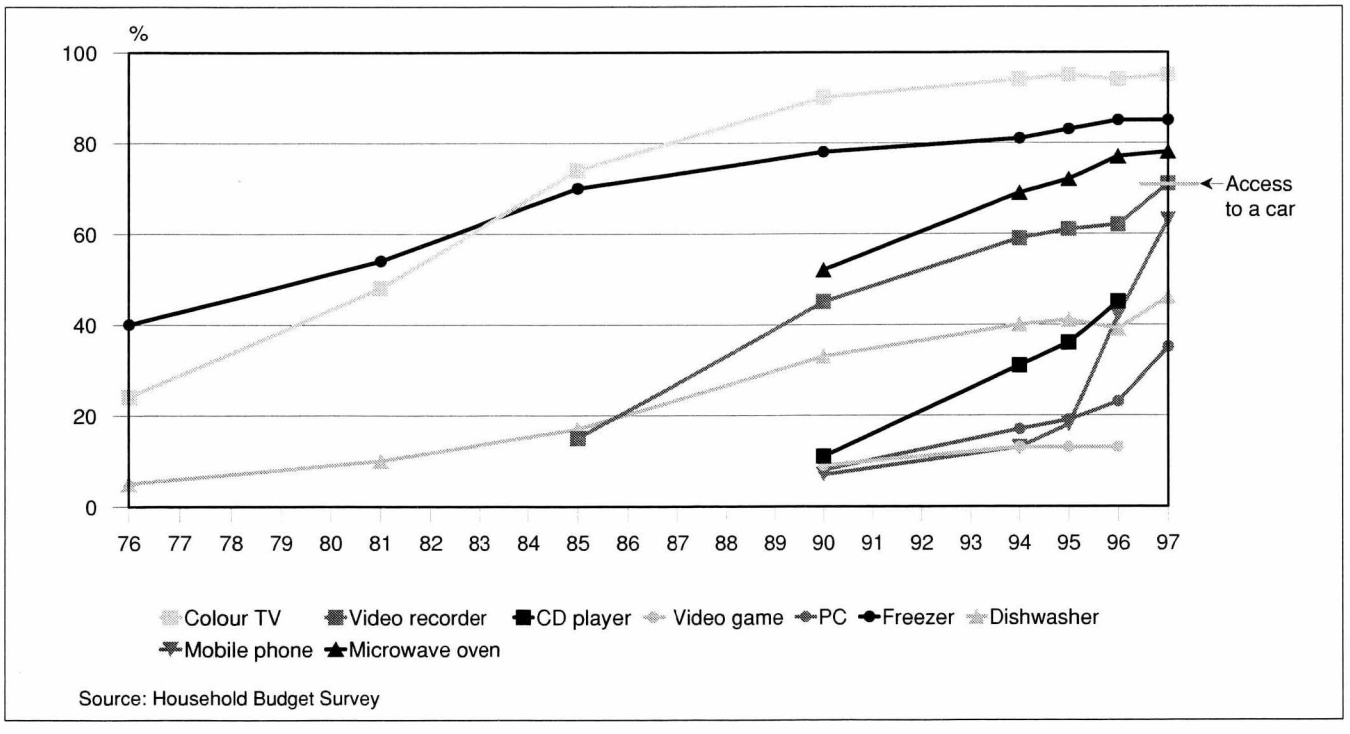
We shall consider in this chapter the extent to which the numbers of mobile phones, home computers, modems, CD-ROM units and Internet connections increased between November 1996 and November 1997. The information for 1997 is based on replies obtained to questions added to the consumer barometer data collected in connection with the labour force survey. The figures were adjusted to allow for non-response and to account for all households in Finland on the basis of their estimated numbers at the end of 1996. As the samples for the inquiry analysed here and for the labour force survey were formed on slightly different principles, comparison of the situations at these two points in time involves a degree of uncertainty in addition to the normal random variation. The expansion of modern information and communication technology resources in households will thus be discussed below only at a general level and with respect to the sizes of the households. Any minor changes observed may of course equally well be attributable to random variation, but major, systematic changes offer opportunities for assessing actual trends. The chapter will conclude with a discussion of the extent to which access to modern information and communications is dependent on the income levels of the households. The results obtained on this score in particular should be regarded only as general guidelines, however.

6.1. Increases in new information and communications technology resources

The percentage curves given in the earlier report to indicate the technological equipment possessed by households referring to all households with at least one item of equipment of the given type, are extended in Fig. 101. Many households purchased their first item during the year in question, or rather adopted the innovation for the first time, and this is reflected as an increase in their overall equipment resources. Mobile phones were among the most commonly purchased articles, while the previous steady rise in the number of home computers was replaced by a sharper growth pattern during that year. Video recorders were also commonly acquired, and dishwashers and microwave ovens have spread into new households. It can be stated by way of comparison that 72% of all households had a car in November 1997 as compared with 70% a year earlier.

The numbers of households with a mobile phone, home computer and car in November 1996 and 1997 will be examined below by size, followed by a look at the increase in the numbers of CD-ROM units, modems and Internet connections.

Figure 101. *Frequency of certain household appliances.*



Source: Household Budget Survey

Figure 102. *Frequency of mobile phones, home computers and cars by household size in November 1996 and November 1997, in % (of those having at least one of these)*

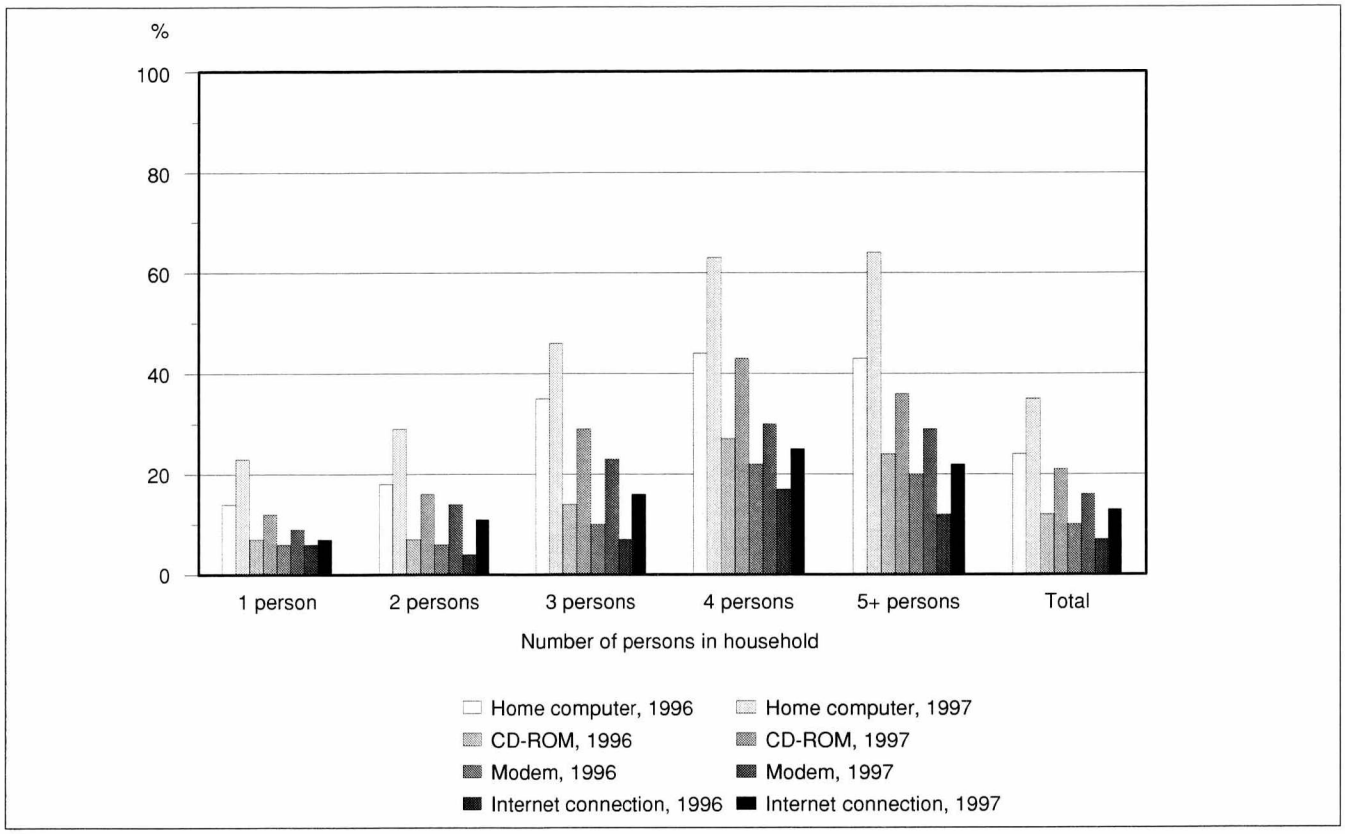
The number of home computers and mobile phones increased rapidly during the year in all household types, though the former remained markedly less common in small households (Fig. 102). Over a half of all households irrespective of size had at least one mobile phone, but small households were still less prominent in this respect even though mobile phones were most common in young small households. Despite such rapid growth, car were still much more common than mobile phones, except in single-person households, which were more likely to have access to a mobile phone.

The admittedly rapid spread of home computers does not yet mean that households necessarily have access to multimedia or network connections. The percentages of households within a certain size category with access to a computer interface in November 1996 and November 1997 are indicated in Fig. 103. This clearly suggests that despite the increased numbers of home computers, the households on the average still seldom had access to CD-ROM units, modems or Internet connections in November 1997. The situation was best in four-person households, over 40% of which had access to a CD-ROM unit and one fourth to Internet connections. Approximately every third home computer had been connected to the Internet, and some 60% of them had a CD-ROM unit.

Although the number of home computers is still not very great, many households purchased their first computer during the year. Assuming that the rate remains unchanged, some 250 000 households can be expected to purchase one within the next year. This would of course enhance the spread of computers enormously, though the duration of such a favourable trend is quite another thing. Some 450 000 households purchased their first mobile phone during the year, and again assuming that the trend continues at this level, all households would have at least one mobile phone within the next two years. The rate can be expected to slow down during 1998, however, even though an increasing number of households may purchase one or two additional mobile phones. It will be possible to examine in the next few years whether mobile phones remain in use or whether they are gradually given up as useless. Their use at work may also increase, perhaps quite considerably.

The number of households purchasing their first mobile phone within the year was double that of households declaring in November 1996 that they intended to buy one in the next few years. This difference between intentions and the actual situation may be attributable to a number of factors. Firstly, the households may have

Figure 103. *Frequency of home computers, CD-ROM units, modems and Internet connections by household size in November 1996 and November 1997, in % (of those possessing at least one of these)*



received many of their mobile phones as presents, and secondly, the prices of these phones fell considerably in 1997 and there were numerous special offers that included free call time as well as very low prices. The number of first computer purchases by households during the period November 1996-November 1997 roughly corresponded to the number that indicating that they expected to acquire one by the end of 1998. Computer prices have not dropped so much as to have accelerated their purchase to any appreciable extent. They are also still so expensive that people do not usually give them as presents. In addition, a computer is a much more complex thing to buy than a mobile phone.

The effects of income levels on the possession of a car, mobile phone or home computer in 1996 and 1997 are illustrated in Table 21. Unfortunately the income questions differ slightly in terms of their classification for the various years, so that the categories are not fully comparable. The table nevertheless demonstrates that a rise in income increases the number of items of equipment in the household, though by no means in a linear manner. The results clearly show how families considered a computer so important that they were much more likely to purchase one than households with no children, even when both household types had the same gross income. In fact, families had much smaller incomes when examined relative to each household member or unit of consumption. The proportion of persons living alone and having a good income who purchased a home computer did not increase.

7. Summary and conclusions

7.1. Principal findings

The purpose of this chapter is to summarise the main results of the inquiry in such a way that even the busiest reader will be able to gain an overall impression of the types of person most likely to become users of modern information and communications technology. In any case a glance through the many diagrams presented in this report will provide easy access to information on the use of these forms of technology among different population groups in Finland, their possession of the necessary skills and their related experiences and opinions.

The main objectives of the survey were a) to describe the way in which modern information and communications technology selects certain households and private persons as its users, b) to examine regional differences in the use of this technology, and c) to determine the extent to which information and communications technology resources in the households increased between November 1996 and November 1997. The material comprised interviews with a total of 2362 respondents representing 1 082 households. This paper discusses in more detail the topics taken up in the report "The Finns and modern information technology" (Nurmela, 1997a).

An attempt was made to achieve the above aims through a resources-based framework in which obstacles to the purchase and utilisation of new information technology were defined as comprising a) conditions (e.g. financial resources), b) insufficient skills and knowledge, c) uncertainty over how modern information technology can be used in one's own activities, d) lack of motivation, and e) illness and incapacity. The resource-based approach adopted here implies that conditions can be changed and skills, knowledge and motivation improved through social measures. A person should thus not be deemed incapable of acting in the information society on the basis of his (current) lack of expertise in modern information and communications technology. After all, mastering the basic information technology skills is not even as demanding as driving a car, which is mastered quite well by an extremely large number of the Finns.

Using modern information and communications technology also requires that people should have an *access point*, i.e. the actual equipment and the necessary networks, the *skill* to use these and a sufficient degree of *motivation* (= a cause or justification for their use). The spread of new interactive technology thus requires that the user should find motivating contacts among people or services and that these should have sufficiently *compatible access points* for establishing contacts using the new media.

The third point of departure was that households of different size and at different stages of their life span will *differ in their decisions, purchases and actions* regarding the adoption and use of modern technology, which led to the examination of single-person households, two-person households and families separately. Small households were divided into sub-groups on the basis of age and sex, and families by the age of their children. The respondents' personal utilisation experiences, skills and opinions were classified by age and sex and on the basis of whether they were living in small households or families. The main findings are indicated in the form of diagrams which enable the frequencies of different items of modern information and communications technology to be examined. Although interviews were conducted with a fairly large number of persons, the results should only be regarded as approximate indicators of changes.

Figures 104, 105 and 106, which indicate the equipment resources of single-person, two-person and at least three-person households, enable the frequencies of mobile phones, home computers and modem connections to be compared with conventional means of communication and electronic media in terms of data for November 1996.

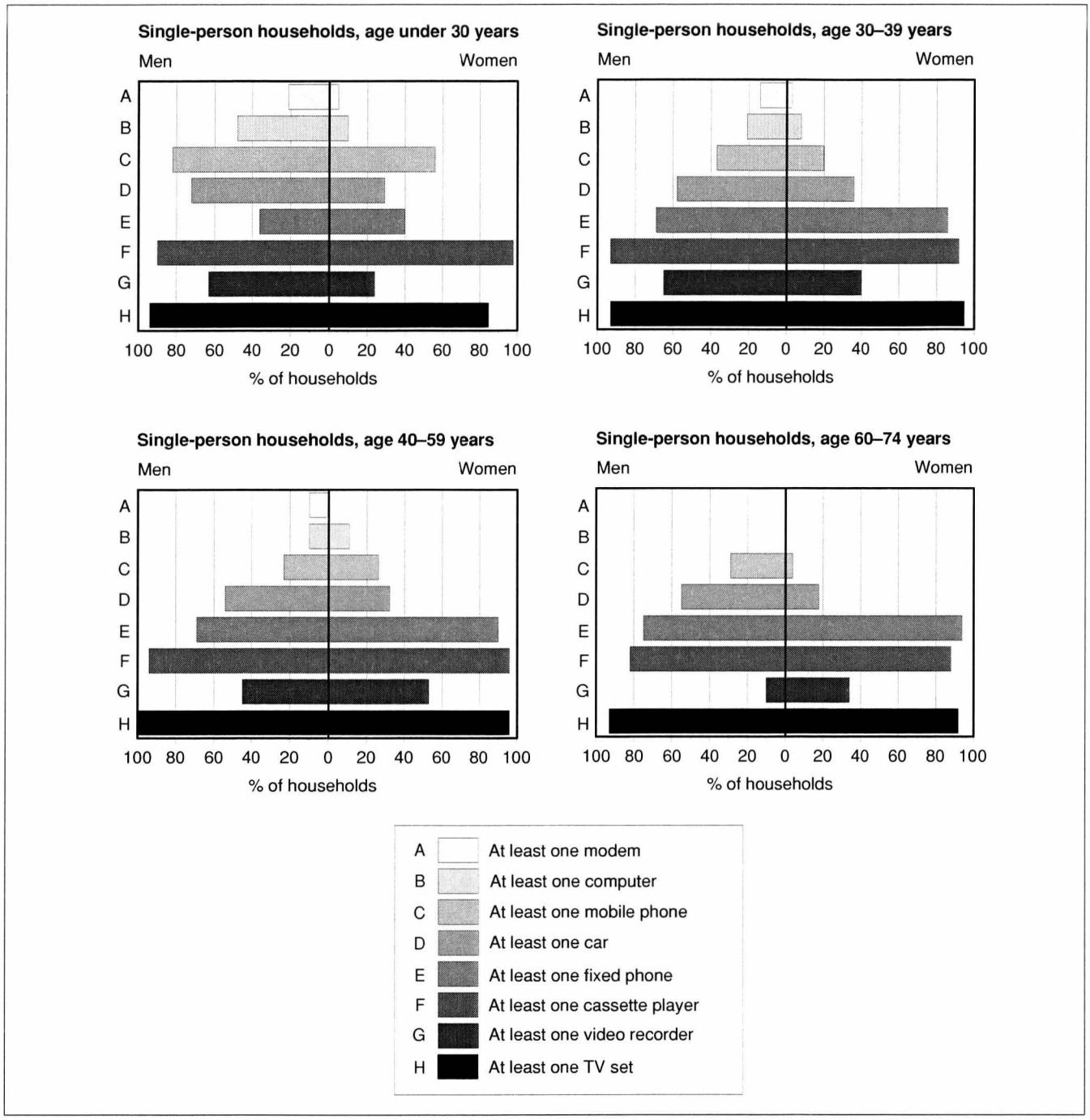
1. *The mobile phone was relatively common in most types of household*, particularly in young, small households. A large number of households of all types had purchased their first mobile phone (or rather taken it into use) between November 1996 and November 1997 (Fig. 107). The popularity of mobile phones is also attributable to the large numbers of these used by people in their work, especially by men aged over 30 years.

2. *The home computer had gained a solid foothold among single men aged under 30 years, in two-person households of the same age and in families* with children of school or student age. Many families of at least four persons in particular had purchased their first computer during the above period (Fig. 107).

3. Surprisingly *many home computers lacked a printer*, the figure for computers with a printer being only 70%. CD-ROM units were more readily available than modem connections, and users of these were to be found in the older age groups as well.

4. *Boys aged 10–14 made up the only category in which a half of the respondents used a home computer*

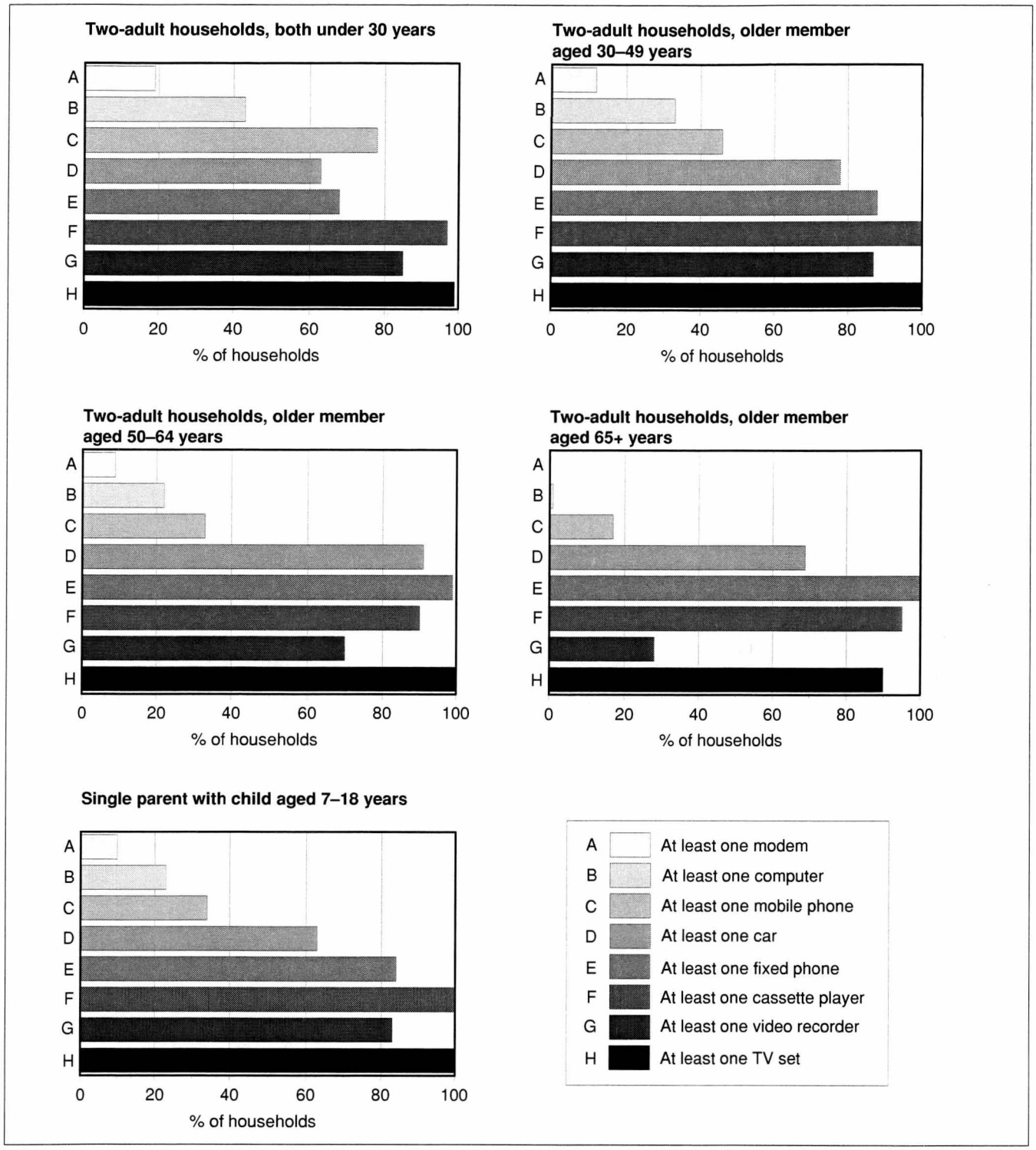
Figure 104. *Equipment resources of single-person households by age and sex, in %*



daily, the figure being 2/5 among males aged 15–29 years. Adult women with families used a computer less actively than did those living in small households. Although a fairly large number of some household types already had a computer, at best only a half of the computers had information network connections. Thus only a small number of Finns (maximum 15–18%) are able to access e-mail or browse WWW pages at home (Fig. 108). The actual number of home users may be in the range 5–10%, depending on how this is determined with respect to frequency and duration and whether the entire population or only persons from school age up to 75 years, for example, are regarded as potential users. The use of a home computer for network connections was most common among young men aged 20–30 years, and not among those aged under 20 years as is often assumed.

5. Changes in the availability of different items of equipment in recent decades are shown in Fig. 109. Looking at the data arouses the question of *what unique innovations the mobile phone and home computer in fact have been as far as their diffusion is concerned* by comparison with many other household appliances. The bread-making machine and water bed, for example, are

Figure 105. Technological resources of two-person households by household type, in %



among earlier novelties purchased by only about 10% of the households of that time. The numbers of first computer purchases have increased steadily in the past few years, a trend which even seems to have accelerated in the last year. The number of mobile phone purchases has increased extremely rapidly in the last two years, so that where less than one fifth of the households had access to a mobile phone a couple of years before, the figure is now almost 2/3. Should the number of mobile phones continue to increase at this rate, all Finnish households will have at least one within slightly less than two years. This is hardly likely to be the case, however.

The mobile phone has spread extremely rapidly and has reached a much wider range of 'social strata' than has the computer. In addition to its lower price, and the fact that its price has dropped substantially in recent years, *it is easy to use by analogy with the conventional*

Figure 106. *Equipment resources of households of at least three persons, by household type, in %*

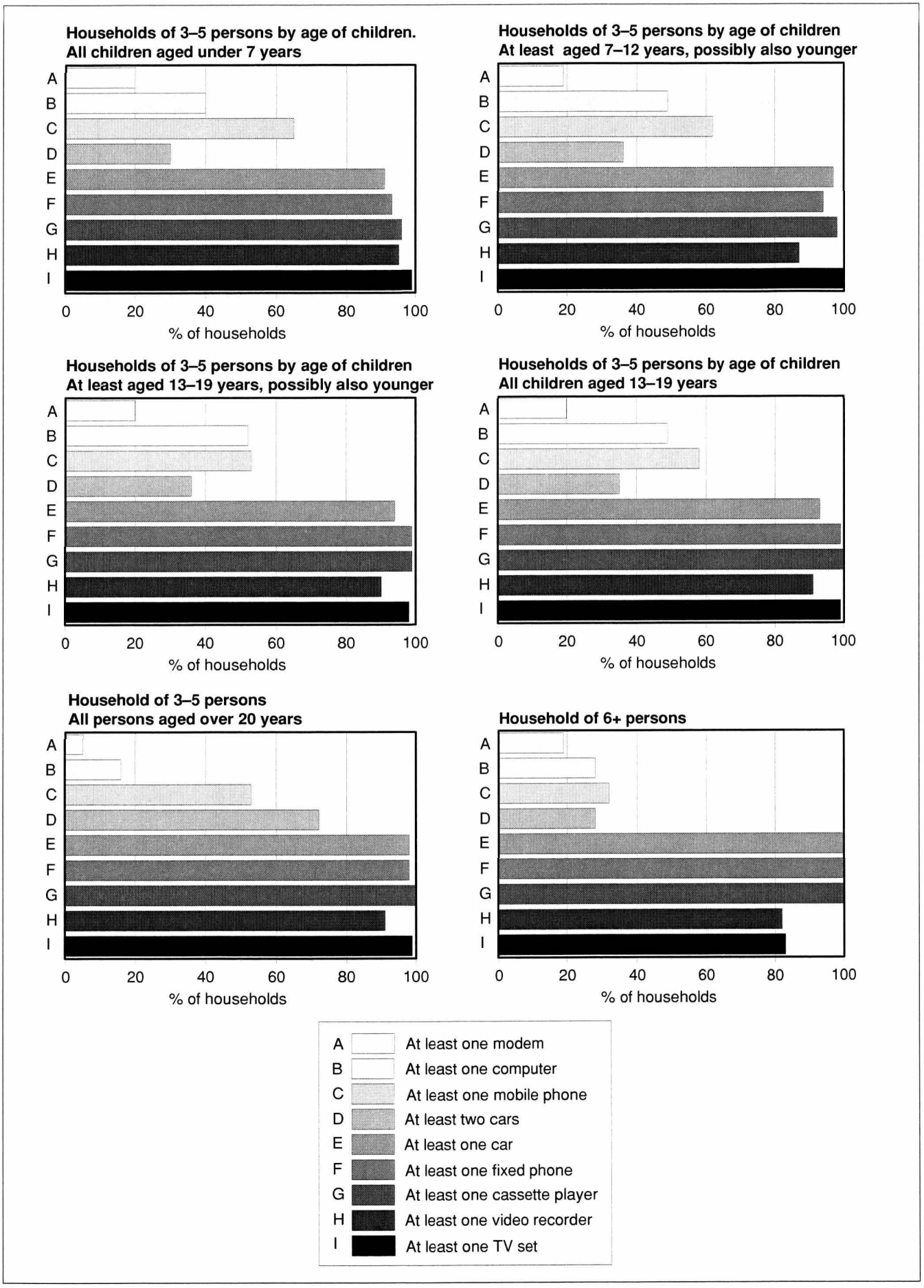


Figure 107. *Frequency of mobile phones, home computers and cars by household size in November 1996 and November 1997, in % (of those having at least one of these)*

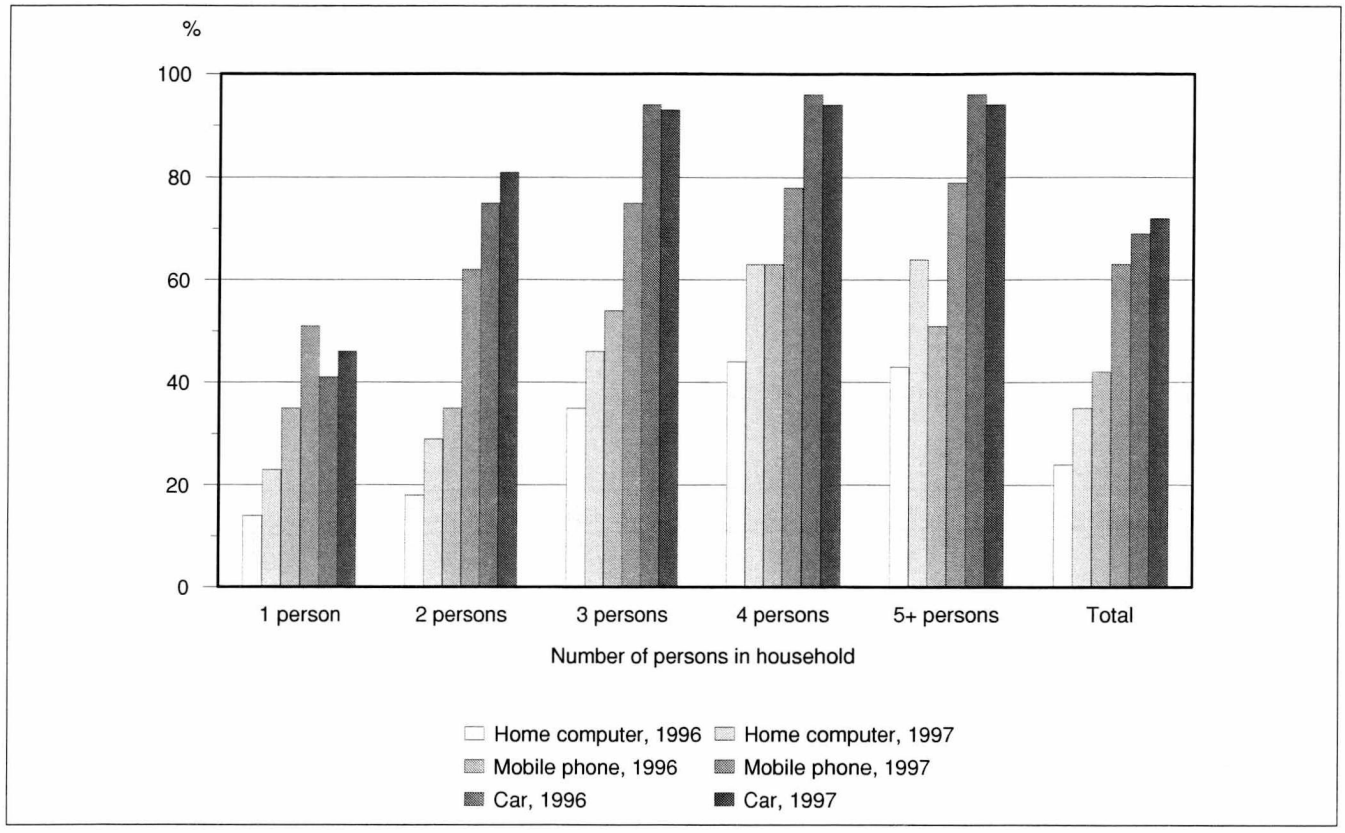


Figure 108. *Frequency of home computers, CD-ROM units, modems and Internet connections by household size in November 1996 and November 1997, in % (of those possessing at least one of these)*

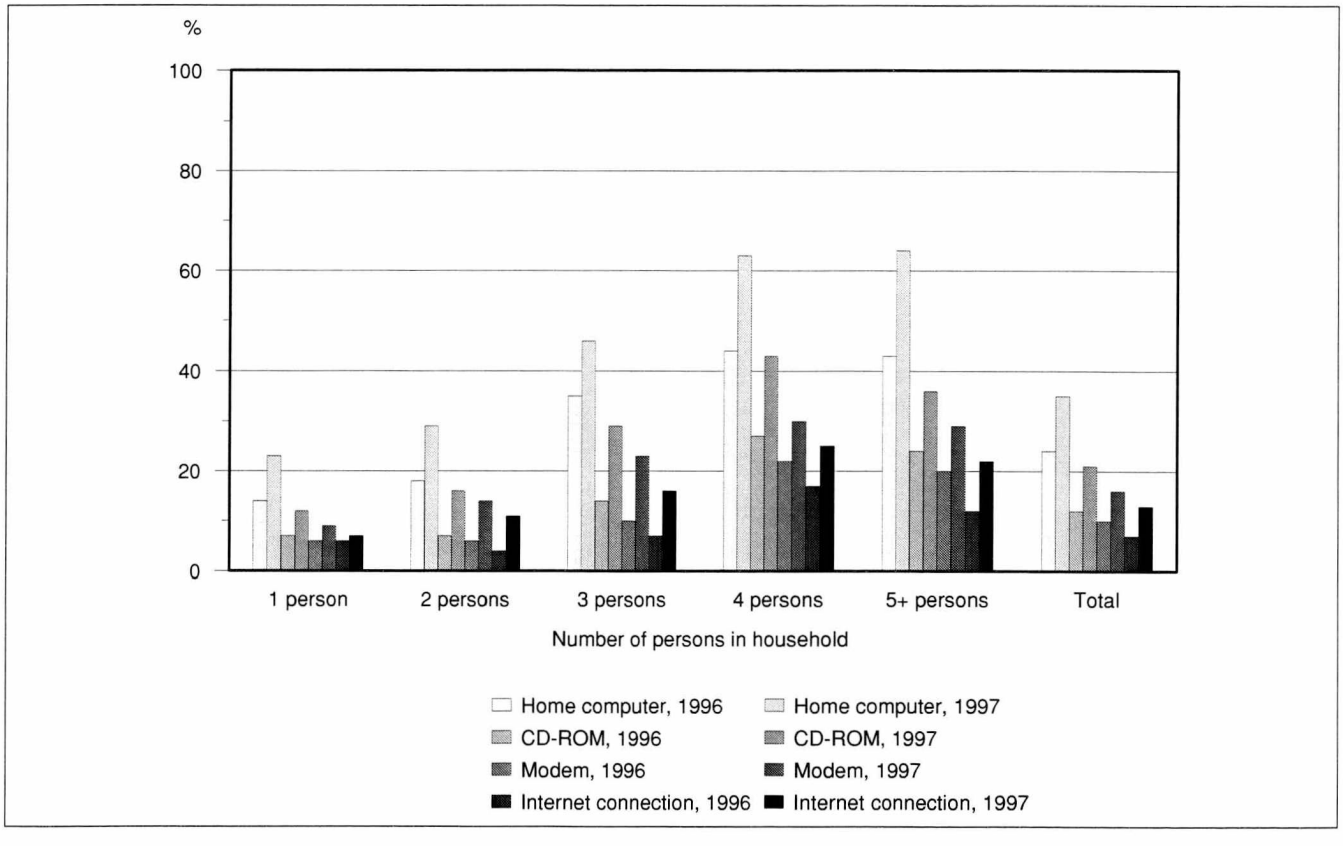
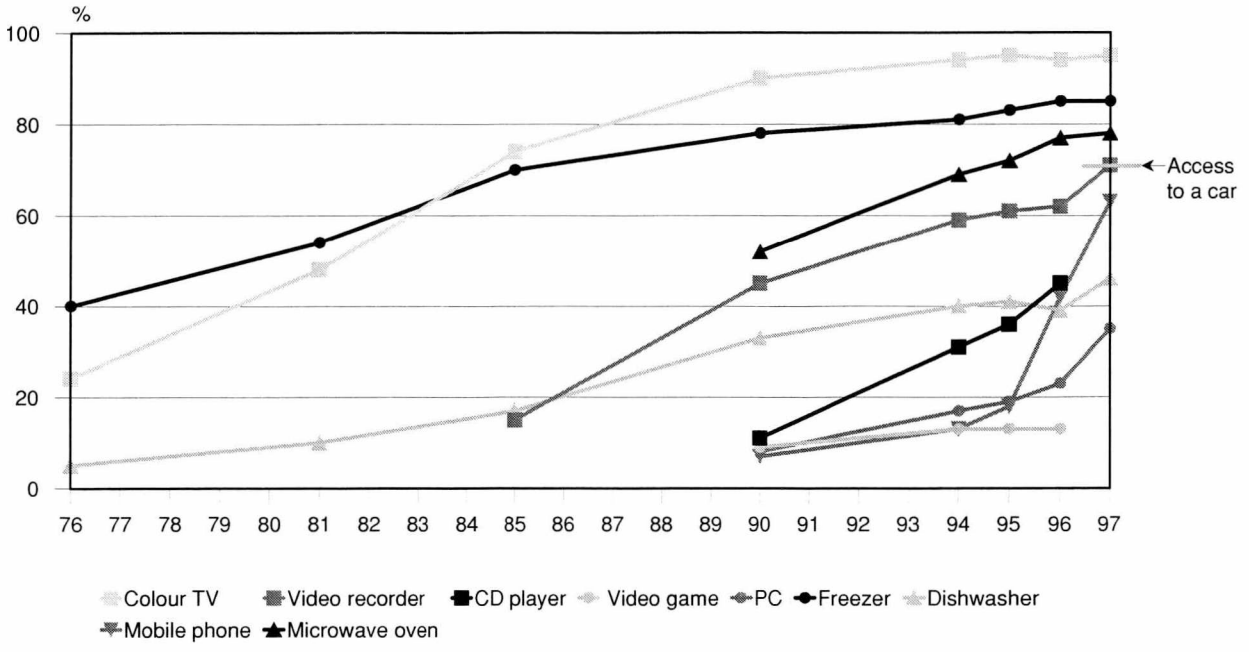


Figure 109. *Frequency of certain household appliances*

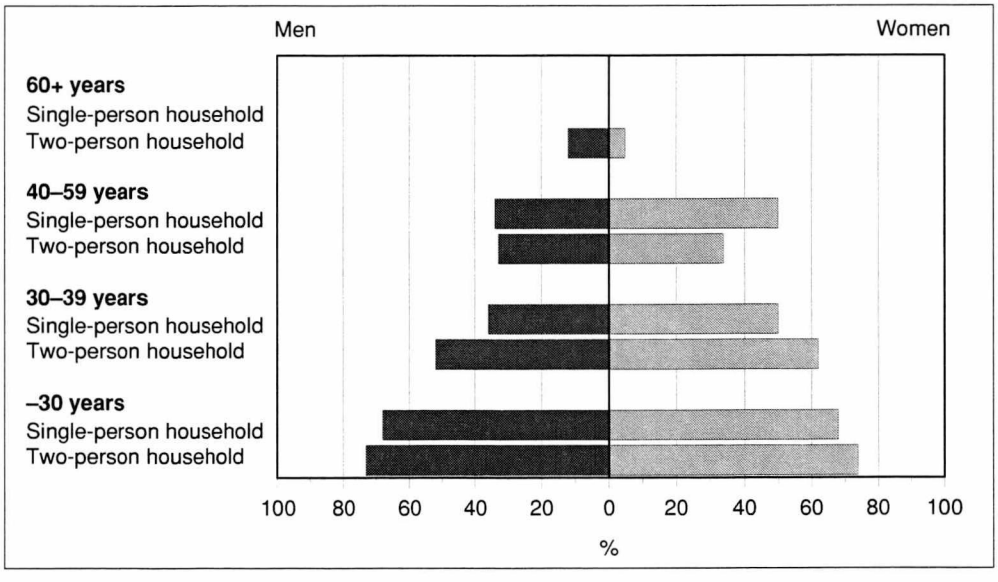


Source: Household Budget Survey

fixed phone without changing the basic functional concept but simply freeing the making of phone calls from the restrictions of time and place by putting the phone in one's pocket. The spread of the mobile phone has been accelerated by its use for work purposes. This may be attributable to changes in the nature of people's work, but is also related to the fact that improved accessibility really improves working efficiency. The emphasis on client-oriented patterns of action in working life has been an excellent motive for the increased use of mobile phones.

6. *The effect of educational and income levels on the purchase of modern information and communications technology* was examined in the form of a number of tabulations. These indicated that education in particular did not seem to contribute to the frequency of the above technological devices at home. Income levels may play a role in this, though disposable incomes are governed by other household preferences. Young people and families with children seemed to have important grounds for purchasing such equipment even though their incomes were quite small in some cases. Not purchasing a computer was thus the outcome of other factors rather than smallness of income. Over a half of the respondents reported that they simply did not need a computer, for example, and only less than a third that

Figure 110. *Proportion of respondents living in small households with at least some experience of computer use, by household size, sex and age*



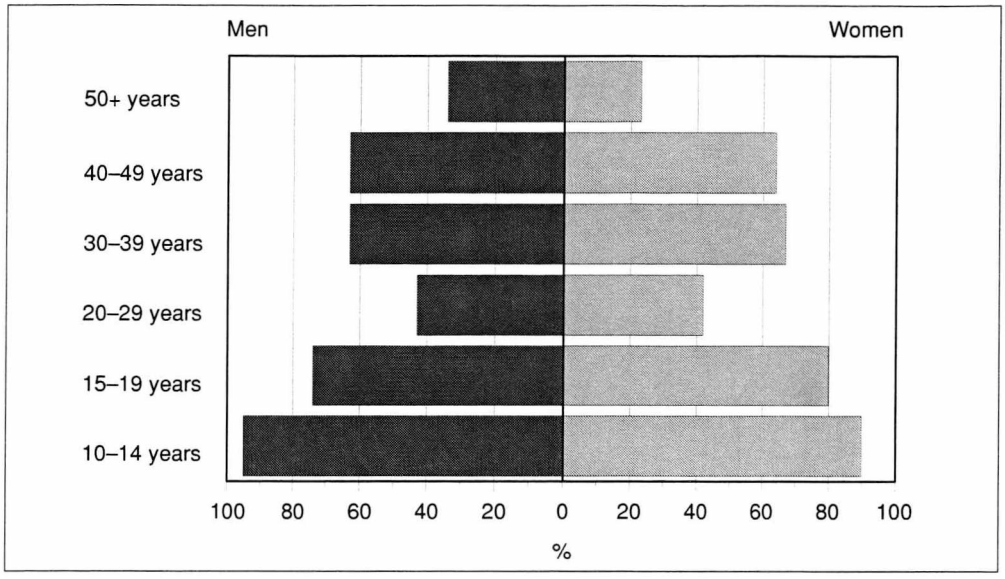


Figure 111. *Family respondents with some experience in home computer use as a % of all persons in that age category, by age and sex*

their decision not to purchase one was largely due to a lack of money. The equipment resources of single-parent families were quite good as compared with those of the other family types.

7. One important finding here was that *use of a computer at work essentially reduces the inequality by sex and age* observed in the use of home computers (Figs. 110 and 111). This is because women have better opportunities for using computers at work than men, their work sometimes even requiring it. The results nevertheless give the impression that the computer skills and expertise gained at work are somewhat narrow and not very profound. This is problematic in the sense that possessing restricted computer and information network skills will hardly create any positive desire to learn more, creating a motivation of a kind which could make population groups other than young men use information technology as a tool and as a means for expressing themselves. It should be borne in mind, however, that women and men may assess their skills on different scales, i.e. the former may be more likely to underrate their skills.

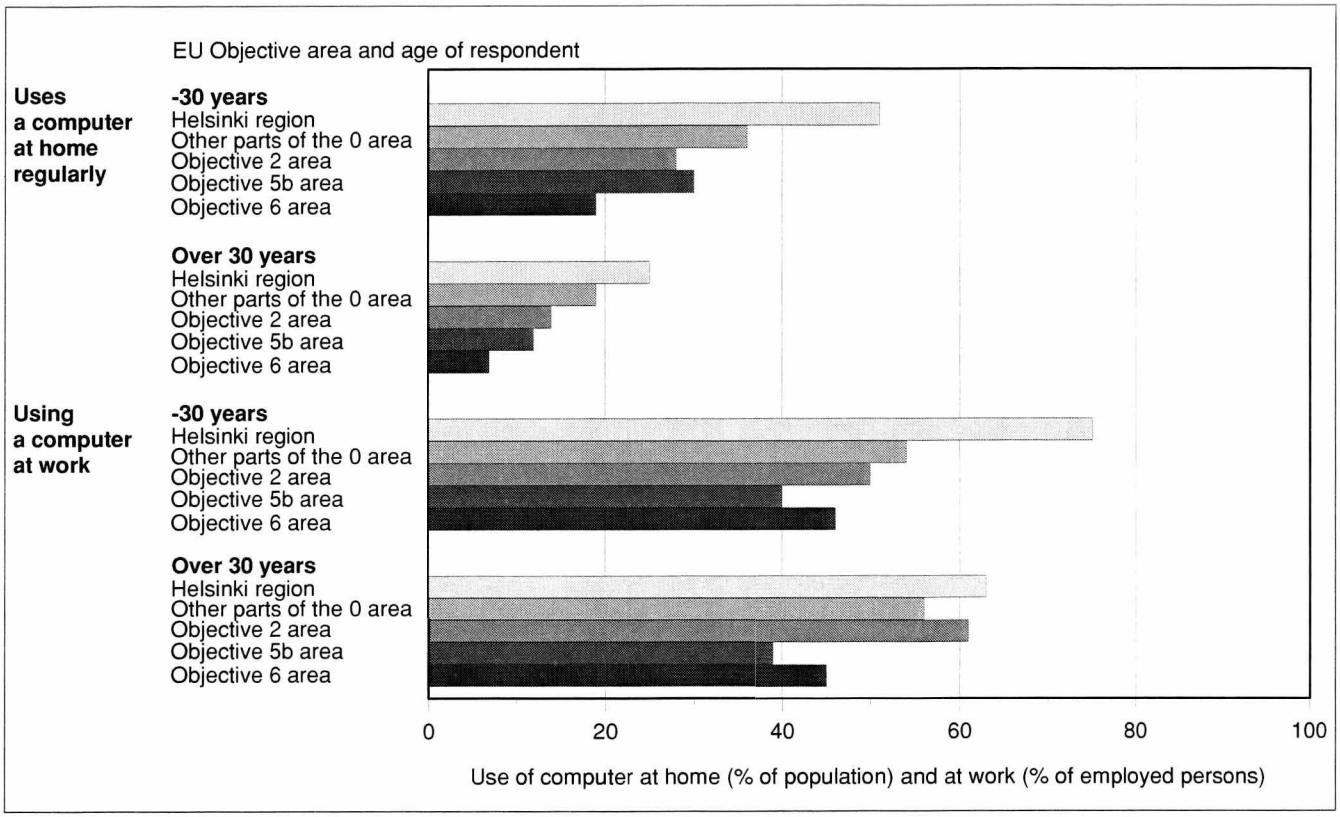
8. The regional differences proved to be quite considerable. *The information and communications technology resources of households living in urban centres were better than those of households located in remote areas.* The use of a computer was also an essential part of a much larger number of jobs than in the remote areas, where *this factor does not serve to balance out the differences between the sexes and age groups to the same extent as in the centres.* More attention should thus be paid to regional differences (Fig. 112).

9. Examining the respondents' responses to different statements also pointed to *attitudinal differences between the regions, of a kind which may slow down the spread of modern information and communications technology to remote areas.* Young people living in rural areas reported feelings of marginalisation from the information society more often than did those living in the other areas. This may in part also be attributable to differences in experience, for having used new technology may reduce feelings of reservation as compared with non-usage.

10. One of the aims here was to examine whether people are able to learn network-type patterns of action by using teletext facilities and video recorders in a way resembling the use of information networks, i.e. by using these as *instruments for breaking free from programme timetables and for browsing programme information and news*, for example. The results indicated that *this type of use was most common among men aged 15–39 years* but limited small in other population groups.

11. *The Finns can be regarded as skilled telephone users.* They easily pick up the phone and do not hesitate even to a call a stranger. Although they considered the phone an everyday tool and an essential part of their way of life, *they still made little use of service numbers, particularly chargeable ones.* There are no network obstacles to using services of this kind, for the entire telephone network has been digitalised. The households had access to adequate numbers of voice-frequency and mobile phones, so that the equipment is there. They simply were reluctant to call service numbers, in spite of the wealth of these that are available. (The Helsinki telephone directory, for example, contains hundreds of services available at varying prices.) Operators and providers of services may have examined the reasons for such behaviour, setting out from their own interests. This should also be backed up by independent research, however, at least if the aim is to make public ser-

Figure 112. *Regular use of a computer at home and at work during the past 6 months, by age and EU Objective area, in %*



vices available through fee-paying telephone and information networks.

12. *Persons who have bought things from mail order firms could easily develop the habit of network shopping.* At least the women, who are the most active mail order shoppers, are not yet using home computers nor familiarising themselves with network shopping. Networks may still be fairly poorly equipped for competing with traditional mail order companies.

13. *Fears regarding data security and the information society were slightly more common among the women*, especially the older women. All in all, however, fears and doubts of this kind were quite rare. Experience of modern information and communications technology seemed to reduce fears and doubts rather than increase them.

7.2. Conclusions

The ideas put forward in this section are not bound very closely to the actual analysis but should rather be perceived as the author's own ideas about what the evident selection element introduced by modern information and communications technology to its users could be all about. They are thus intended as a means for promoting discussion and challenging the reader to come up with interpretations of his own.

A large number of users of modern information and communications technology are young men living in small households and children and young people in families. What is the reason for this? It would seem on the basis of the analysis that the use of new information technology at home is a hobby that arouses the interest of young men. The use of computers inevitably involves, for good or ill, depending on one's viewpoint, a great deal of technical experimentation and searching for alternatives, which could perhaps be looked on as *a post-modern equivalent of hunting and fishing.* The young men who take to modern information technology perceive computers as a challenge, a new thing to be conquered, and the world of computer games also essentially involves a strong combative element and requires a combination of skill, speed and intelligence. Exaggerating a little, it can be said that the use of computers and network connections offers an opportunity for 'tuning a strange machine' and 'taking up a fresh challenge'.

The families' main motives for purchasing a computer were often connected with the children's wishes, their prospects for the future and their interest in computer games, although the families also reported an interest in new practical opportunities and a desire to keep pace with modern development. *Information technology*

may thus be capable of satisfying a number of important needs in families with children, acting as a means of entertainment which keeps the children at home and off the streets and at the same time as a form of training for future requirements. Families may perhaps adopt modern information technology in the same way as they once did the video recorder, which many of them may have purchased "to keep the children quiet". On the other hand, the computer also enables the adults to run their own businesses and do various types of paid work.

The mobile phone is a rational choice for young people who live in small households, lead an active life and change dwelling regularly, for example. *It also allows them to maintain their social network in real time* and enables people to be together practically anywhere even if they are not physically in the same place. Another reason for the spread of mobile phones among children and young people may be *their parents' need to be able to contact them* even if they cannot actually keep an eye on them. This expands the boundaries of the territory their parents regard as 'safe'

One could also raise the question of whether the fact that Nokia mobile phones are made in Finland and that the country is just breaking free of the economic recession have together created an atmosphere in which *purchasing a mobile phone may generate feelings of support a project for economic recovery as well as entering the information society*. Perhaps the spread of mobile phones is partly an expression of national feelings. It would be interesting to examine this in more detail in the future.

It was stated above that the Finns are highly familiar with the use of the telephone and also extremely skilled in it, and yet they are reluctant to use the wealth of chargeable service numbers available. One reason for this could lie in the fact that *Finland and the Nordic countries have no custom of charging a separate fee for services rendered*, i.e. tips in restaurants, taxis or elsewhere. Service charges of various kinds are parts of the everyday life in many countries, and paying for telephone services may perhaps feel 'more normal' under such circumstances.

The questions on the use of cashcards suggest that the Finns want to avoid the admittedly moderate bank charges by paying their bills using automatic cashpoints, even though they often have to queue in somewhat austere surroundings in order to do so. This may also reflect another aspect of the Finnish character, in that *very many of the respondents reported that they were do-it-yourself people who consider it quite natural to look after their own affairs*. The self-service concept has been taken quite far in a number of fields in Finland, and this trend may have given rise to patterns of action that do not favour the use of chargeable services.

It may be some time before a network connection is available which is up to the standard of a carefully designed mail order catalogue, and before people have come to accept it. *The dawn of network shopping for consumer goods is still a distant utopia.* It reflects a desperate quest for object-based forms of usage, as is discussed brilliantly in relation to the early stages in the history of many other innovations by Mika Pantzar in his book "How to tame technology" (in Finnish). The alternative is that people's willingness to pay varies in a very illogical manner. A small group of people would evidently still be willing to pay FIM 30 a couple of times a week for consumer goods to be brought right to their doorstep, but this will hardly serve as an analogy for network shopping in a situation where huge numbers of people take their car and drive to a supermarket a couple of times a week to save less than FIM 30 without even bothering to think about the cost in terms of fuel or their own time.

If we try to think what attitudinal triggering factors would make a Finnish person purchase a computer and network connections for home and leisure time use, we arrive at the following two attitudes: a) they will not admit to copying others in their purchasing habits, and b) they claim to be do-it-yourself people. If their actions are governed by attitudes of this kind, surely the computer should be able to fulfil the same function as the 'tool box' or 'the sewing basket' which have been used for ages to make visible, concrete objects for oneself and others, ranging from small trinkets to whole houses. We are now moving over from concrete leisure time hobbies of 'making things' to the creation of 'content products'. Admittedly, this must take time, but it should be remembered that we already have a strong, lively tradition of self-expression in the writing and visual art clubs run by adult education institutes etc.

Although the majority of people cannot of course be expected to throw away their electric drills and put their knitting on one side, modern information technology can be said to offer new population groups an opportunity to move over to generating multimedia products instead of merely being consumers of them and to regarding this as their hobby, now that the previously expensive, complex professionals' tools are available at lower prices and a simplified form thanks to the progress made in software development. Making one's own homepage and placing it in the Net for browsing by 'net people' in a way creates an entirely new 'scene' where one can display a variety of self-made written, visual and even audio contributions. Surely these can be regarded as

the results of 'making things oneself' and as genuine items of self-expression. Perhaps the 'attitudinal independence' of the Finns should be viewed as a special strength which prevents the new information and communications technology from become solely or mainly just another channel for commercial entertainment.

If the new commodities introduced by the information society are 'non-material' services, how then can we find enough time to consume their contents. If we asked people how many of the television programmes that they have recorded on video they have ever actually watched, we would probably find that their time budgets and patterns of behaviour simply do not allow them to watch everything. The time devoted to TV viewing has already begun to fall in some countries, and it has certainly not increased in Finland. As far as young people are concerned, this may be attributed to the use made of the computer and network connections. At least, many of the respondents regarded watching TV as an alternative to using a computer. If this holds good, computers and network connections may often have to compete with various forms of entertainment. But is it realistic to assume that TV will lose out in its struggle with network services or the CD-ROM, or that the latter could provide a daily living for a large number of people engaged in creating network content services, even on the international scale?

Perhaps the range of entertainment available through networks will diversify to such an extent that these will also arouse interest among women. There is certainly a need for more sophisticated, cultural computer games. Some derivatives of Solitaire and Tetris could prove a success, or perhaps network services appealing to women's logic of caring will be developed in time. Who will be the first to transfer the most widely read stories from women's magazines to the network in an interesting and imaginative form? Communication camps have made successful use of gossip as a means for making children and young people write to a paper and read it, the main motive being the need to check "If anyone has started any gossip about me" and "Which of my friends should I spread (well-meaning) gossip about?". The same incentive is currently being used to encourage network discussions.

The mobile phone seems to have managed to find a place in the functional structures of households most of all as a means of communication between family members, enhancing their safety and offering membership of other small groups. It should be noted, however, that the trend is also attributable largely to the availability of mobile phones through work, especially among middle-aged men. The mobile phone also raises many interesting alternatives which enhance people's independence and autonomy, including the chance to choose beforehand which call to answer, the possibility of using an answering service, and the ability in principle to located someone via his mobile phone. It would be interesting to examine the role of these elements in shaping one's personal identity.

On the scale of society as a whole the mobile phone is already in extensive use, and this can be expected to increase greatly by virtue of its role as a highly personal means of communication. There is thus no reason to be worried about any population category being marginalised with respect to its use. Instead, one could discuss and examine the reasons why the Finns make so little use of chargeable telephone services although they are in general active telephone users. Rationalising services in such a way that they are available through a telephone number which only replies with a recorded message would apparently require people to have developed a habit of using the phone for contacting these services and of considering carefully what types of service that can reasonably be offered in this way. Using the telephone for such services would basically be a more justifiable form of rationalisation than setting up automatic functions using computers and network connections, as people are much more familiar with the phone. It should be noted, however, that this rationalisation is against the principle of obtaining all services from one counter, which has become a slogan in the last few years. If the aim is still to keep to this principle, the former 'switchboard operators' could perhaps be replaced with a new service concept in which the 'operator' would have access to different expert systems and databases in order to ensure conformity with the above principle (see Viherä & Hämäläinen 1997).

Finding 'services' which will appeal to the homes and leisure time of middle-aged and retired people poses a major challenge for modern information technology. Small, elderly households are numerous, and thus occupy an important position in the potential market, but only a minority of the people concerned have access to training in modern information technology at work. Although employed persons did not report very extensive skills, work can be assumed to offer good opportunities for expanding these skills further according to one's personal needs. Guided, systematic training in information society functions at work could well be a topic worth extensive social discussion if the aim is to prevent marginalisation. The only justification for transferring public services to networks may be that doing so will enable people with network connections to conduct business through them. No conclusions can be drawn about the

resulting cost savings without a more profound knowledge of the matter, although it should be noted that developing the necessary systems always calls for major investments.

Modern information and communications technology was also assessed above from the following viewpoints (see page):

- efficiency = doing things right,
- influence = doing the right things, and
- appropriateness = effect of measures on the customer's ability to satisfy his long-term needs

Some comments can be made on these from the point of view of people's use of modern information and communications technology, whereas any extensive discussion of the appropriateness of a specifically *information*-based society will be left for some other forum. We may ask, however, without any very detailed knowledge of the whole range of information society projects, *whether things were done right* when schools were suddenly provided with large numbers of computers, for example. Did the teachers have the necessary capabilities, had proper remuneration been agreed for this, were proper instructions available for fitting out the necessary classrooms, were suitable programs available for teaching purposes, on so on? Furthermore, were computers introduced in companies and offices with insufficient training and guidance? After all, the present respondents reported no more than moderate skills in using them. It is apparent such measures are currently been subjected, at least to some extent, to various kinds of evaluation which will yield valuable information to back up future planning.

What are *the most influential things that should be done*? If the aim is to ensure that the maximum number of Finns will learn basic computer and network skills rapidly, special attention should be paid to men of working age who live in small households and do not use a computer at work, and to persons approaching the retirement age or have already retired. These groups will fall outside the "Finland into the No. 1 information society" project, for example, as this will be directed at the parents of schoolchildren, and they presumably do not constitute a very large group among the approximately 40 000 persons with a computer driving licence. Perhaps they should be entitled to the same support as is provided for those living in remote areas.

The most important question of all may nevertheless concern *the appropriateness viewpoint*. What long-term needs felt by the population of Finland can be satisfied by means of modern information and communications technology and what should be done about them? The element of competition which is entering practically all walks of life and is particularly fierce in the field of information and communications technology can be assumed to mean that one of the important duties of society is to ensure that a sufficient infrastructure is available for all types of network action regardless of geographical location. Thus it should be possible to pursue the much debated distance work anywhere in Finland. In the same way as society at large guaranteed electricity supplies for all the remote villages and even islands in Finland, the same could be expected to apply to telecommunications networks, including proper data transmission facilities and not just ordinary fixed phone connections. This would be in line with the information society objective laid down by the Finnish Council of State. The first thing that comes to mind here is a subvention system of some kind by means of which the profitable operator business in the urban centres would cover the costs arising from the construction of networks in remote areas.

Still pursuing the above usefulness aspect, modern information and communications technology could also be examined as a potential social trap. Does it contain elements which, if they were to continue and strengthen, would bring out undesirable phenomena comparable to the problems attached to the prominent position of private cars, for example? How can we avoid creating networks in which we will become completely entangled, or networks which do not serve the needs of the members of society at all? The numerous problems connected with data protection would perhaps be the most important point of departure from which to set out to look for such social traps embedded in a networked society. The digital recording of our actions in a number of files and the ever-increasing camera supervision are just some examples of the invisible world of supervision. Has anyone ever drawn up a survey of the potential detrimental ways of using modern information and communications technology? This may sound unnecessarily protective, but one of the basic duties of the central government has traditionally been to protect its citizens against dangers inherent in its way of life (cf. additives in foodstuffs and purification of waste water). Should we not look at modern information and communications technology from this perspective, too?

There is no reason to go looking for problems unnecessarily, of course. There has been much discussion about the detrimental effects of network entertainment, though this mainly has to do with the types of media through which this entertainment is digested. Even the TV has already become reduced to a source of background noise for many people, a way of grabbing pieces of information and entertainment while doing

something else. Perhaps network services will eventually adopt an auxiliary role of this kind.

A third perspective on appropriateness could set out from the wealth of opportunities offered by modern information and communications technology as a medium for self-expression. How could these be enhanced? Can we imagine a situation in which modern technology would provide services to environmentally oriented citizens through a network of sensors, for example?

A more practicable means of progressing from the present situation would evidently be to develop a Finnish-speaking user interface as rapidly as possible, one capable of identifying speech, together with facilities for automatic translation. Both of these would be highly practicable from the point of view of the Finns in particular, for the keyboard is a poor interface as compared with speech and inadequate language skills hamper good interaction in a larger number of international contacts than people are willing to admit, whether it be scientific discussion or communication between tourists and local inhabitants. The microprocessor capacities of modern computers may already allow for the identification of speech. Promotion of these aims in a public form without involving the copyrights of individual manufacturers will require a suitable measure of national and international funding.

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APPENDIX 1

Sum variable segments measuring respondents' data protection concerns

Respondents who agreed entirely or fairly well with the first three statements below but disagreed enirely or almost entirely with the last four were considered to have a negative attitude towards the information society on those dimensions. The maximum sum variable is 7 (for a more detailed discussion, see Nurmela 1997a, item DH28).

1) The data collected by the authorities in computer registers endanger personal privacy.
2) People ask for one's social security number much too often.
3) One should avoid using cash cards and credit cards in order to safeguard one's privacy.
4) An honest citizen does not have anything to fear regarding data protection.
5) It is good that modern computer and telephone technologyies offer opportunities for investigating financial and other crimes, even if this does increase supervision over all citizens.
6) The authorities can make decisions concerning me on the basis of register data without my permission.
7) I am not bothered at all if the person I am calling to can see my telephone number before answering the call.

APPENDIX 2

Sum variable segments measuring negative attitudes towards the information society

Respondents who agreed with the statements below entirely or fairly well, were considered to have a negative attitude towards the information society on those dimensions. The maximum sum variable is 7 (for a more detailed discussion, see Nurmela 1997a, item GH3)

1) I feel I have not been able to keep pace with the progress of modern information technology at all.
2) They advertise and sell us new equipment even if we don't need it.
3) New technologies do not help me to save money or time.
4) I simply do not have enough time to learn about the latest information technology.
5) An interest in modern information technology at home does not help me to cope at work.
6) The current three national TV channels are quite enough for me.
7) Some people avoid learning to use modern information technology even though they have access to the necessary equipment.

APPENDIX 3

Respondents' attitudes towards the world and future events were examined by means of four questions employed in the Danish investigation 'Danskernes holdinger til informationsteknologi' (1996). Four types of orientation (p. 9–10, 124–125) were distinguished on the basis of the replies.

Orientation factors

A:	How do you perceive your chances for influencing what goes on in society? Are they			
	a.1. good,	1		3
	a.2. fairly good,		2	3
	a.3. poor,		2	
	a.4. cannot say		2	
B:	Do you consider the present social changes:			
	b.1. too rapid			3
	b.2. too slow,	1		
	b.3. sufficiently rapid,	1	2	
	b.4. cannot say		2	
C:	Do you feel that society is changing:			
	c.1. for the better,	1		
	c.2. for the worse,			3
	c.3. not changing appreciably,		2	
	c.4. cannot say		2	
D:	Which of the following best describes your opinions about the future:			
	d.1. I am worried about the future			3
	d.2. The future is full of opportunities	1		
	d.3. The future will largely resemble the present		2	
	d.4. Cannot say		2	

The following orientation groups could be distinguished if the conditions laid down in the above scheme held good for at least two of the questions A-D:

1 = future orientation
2 = present orientation
3 = past orientation
0 = none of the above

Appendix Tables

Tables regarding one-person and two-person households and families.

The tables below are presented in a compact form and may therefore appear quite difficult to read. They will nevertheless provide the reader with more in-depth information on the topics concerned. The data preceding a slash in the tables describe the situation in one-person households and the figures following the slash that in two-person households. The numbers of the questions on which the data are based are indicated below each table. This will be of use to readers with access to the first report. Unfortunately the questions cannot be repeated here due to the limited scope of the present paper.

Table 1. *Numbers of calls made from home in one-person and two-person households, proportion and duration of calls from mobile phones and mastery of telephone functions, by age and sex, in %*

	Men				Women			
One person/two persons	–30 years	30–39 years	40–59 years	60+ years	–30 years	30–39 years	40–59 years	60+ years
No. Of calls from home less than 1/week	0/5	3/5	12/12	14/11	2/1	0/1	0/3	0/8
No. Of calls from home less than 10/week	29/41	41/54	61/73	89/73	34/42	47/45	42/55	41/62
No. Of calls from home over 20/week	25/29	33/7	10/5	11/8	16/31	26/24	26/10	15/13
No. Of calls from home over 30/week	10/14	22/5	0/4	0/5	6/14	12/13	14/2	3/2
At least 2/3 from a mobile phone	78/57	59/21	0/17	100/5	94/53	58/31	38/59	34/63
Mobile phone calls much shorter	50/38	31/30	60/58	100/57	49/43	85/50	56/66	100/100
Masters home telephone functions well	70/64	60/54	66/70	57/52	58/54	48/48	45/42	54/43

Table 2. *One-person and two-person households agreeing at least fairly well with the telephone usage statements, by age and sex, in %*

	Men				Women			
One person/two persons	–30 years	30–39 years	40–59 years	60+ years	–30 years	30–39 years	40–59 years	60+ years
I only call if I have good reason to do so	66/71	76/81	100/90	87/91	54/40	44/51	38/61	50/64
I easily pick up the phone to call somebody	45/57	51/20	22/45	26/32	73/74	76/55	49/57	63/65
The phone is an essential part of my way of life	86/82	76/60	33/63	62/75	85/91	82/80	89/77	83/91
It is easy for me to call a stranger	83/70	73/73	85/74	75/73	83/67	74/73	81/72	62/57
It is nice to chat on the phone	36/45	55/24	41/45	61/40	72/86	62/60	67/68	72/72
I want to know how my friends are getting on	74/79	55/46	49/43	50/47	89/94	80/76	69/59	58/70

Table 3. *One-person and two-person households that have used certain service numbers or participated in TV/radio votes or discussion programmes at least once or twice, by age and sex, in %*

Calls	Men				Women			
One person/two persons	–30 years	30–39 years	40–59 years	60+ years	–30 years	30–39 years	40–59 years	60+ years
Calls made by one person/two persons to:								
Directory inquiries	75/72	81/58	68/40	21/37	63/64	62/56	84/40	39/32
Timetable inquiries	16/15	26/19	28/9	0/17	42/35	59/35	44/22	25/25
Bank services replying with recorded messages	12/2	6/7	13/4	0/3	7/2	4/5	4/4	3/2
Bank services (no recorded message)	13/17	19/13	13/13	9/8	7/9	3/7	22/19	15/2
TV/radio telephone voting	26/43	35/30	10/20	0/12	18/35	33/36	29/36	15/14
TV/radio discussion programmes	0/8	15/2	6/2	0/6	0/4	0/0	0/4	8/3

Table 4. *TV viewing in families, by age and sex, in %*

One person/two persons	Men				Women			
	–30 years	30–39 years	40–59 years	60+ years	–30 years	30–39 years	40–59 years	60+ years
TV viewing minutes/day	217/193	200/173	353/198	172/199	219/157	206/177	173/189	308/270
% of persons having the TV on in the background	48/60	50/56	29/51	0/21	61/64	40/41	32/37	24/23
% of persons seldom watching TV	15/8	24/17	24/25	34/15	31/16	26/32	17/25	8/11
% of persons selecting TV programmes quite carefully	70/58	74/74	71/80	90/82	80/72	88/84	81/81	93/83
% of persons selecting TV programmes quite carefully and using a video recorder	46/63	52/51	24/40	10/40	21/54	29/49	38/55	37/30
Able to tune TV/video channels	100/97	96/95	92/93	72/86	86/87	59/46	59/53	60/43
Rational use of the remote controller	2/7	20/12	29/28	64/36	15/14	27/27	30/55	26/40
Changes channel during commercial breaks	74/55	66/62	71/46	36/53	65/69	61/66	67/40	64/45
A compulsive channel switcher	24/37	14724	0/18	0/11	20/17	11/6	3/3	10/6

Table 5. *Use of teletext facilities in small households by household type, in %*

One person/two persons	Men				Women			
	–30 years	30–39 years	40–59 years	60+ years	–30 years	30–39 years	40–59 years	60+ years
Uses teletext daily	60/73	60/43	0/ 34	24/29	44/41	28/13	11/10	5/5
Uses teletext weekly	31/22	18/14	19/15	23/14	26/25	10/23	9/5	13/18
Never uses teletext	0/0	13/7	27/13	52/12	0/10	24/15	11/10	33/53
Consults the following teletext pages at least weekly (as a % of those with at least some experience of teletext use)								
News	75/59	52/52	59/40	52/50	43/37	58/45	26/23	29/34
Weather	46/30	52/47	59/31	0/51	53/30	62/25	26/31	20/24
Lists of tv programme	72/78	65/38	0/38	52/24	82/71	27/28	14/14	12/9
Timetables	23/20	10/12	0/7	0/7	34/6	12/18	0/12	0/24
Sports news and pools	83/76	80/68	59/56	48/61	33/60	9/24	0/27	0/53

Table 6. *Computer use in small households, by household type, in %*

One person/two persons	Men				Women			
	–30 years	30–39 years	40–59 years	60+ years	–30 years	30–39 years	40–59 years	60+ years
Uses a computer daily	55/51	35/23	– /7	– /60	26/25	23/18	0/10	– /17
Uses a computer at best occasionally	11/18	11/18	– /15	– /27	0/16	0/53	0/48	– /83
Introduced to computer use less than 2 years ago	8/7	28/20	– /33	– /0	38/25	38/16	51/27	– /26
Uses e-mail daily	25/17	21/0	0/0	– /0	– /0	0 /0	– /0	– /0
Does not use e-mail	58/54	45/72	0/100	– /100	– /85	100/100	– /88	– /100
Users the Internet daily	14/14	30/0	– /0	– /0	– /8	0/0	– /0	– /0
Does not use the Internet	42/48	56/60	– /87	– /100	– /100	– /100	– /100	– /100
Has used a CD-ROM unit during the past 4 weeks	100/71	83/100	0/71	– /100	100/58	– /68	– /62	– /0
Has used CD-ROM unit occasionally	0/19	17/0	0/0	– /0	0/0	– /32	– /0	– /66
Has used a CD-ROM unit at least 10 times during the past 4 weeks (as a % of all persons having used it)	71/33	29/12	0/0	– /100	0/17	– /68	– /0	– /0

Table 7. *Use of basic computer programmes in small households, by household type, in %*

One person/two persons	Men				Women			
	–30 years	30–39 years	40–59 years	60+ years	–30 years	30–39 years	40–59 years	60+ years
Plays computer games weekly	58/54	14/48	– /22	– /0	35/30	60/11	50/20	– /0
Does not play computer games at all	24/14	45/24	– /57	– /59	26/30	39/40	49/80	– /74
Uses word processing weekly	85/67	80/63	– /24	– /89	45/59	100/44	50/49	– /26
Does not use word processing at all	6/17	0/5	– /57	– /11	17/23	0/0	0/0	– /74
Uses a spreadsheet program weekly	41/31	49/49	– /13	– /0	29/9	62/7	51/15	– /0
Does not use a spreadsheet program at all	30/45	30/27	– /77	– /39	34/69	0/70	49/74	– /100
Uses a graphics program weekly	19/15	23/24	– /21	– /30	0/11	0/11	0/15	– /0
Does not use a graphics program at all	40/65	54/39	– /56	– /70	52/80	62/65	100/62	– /100
Uses a computer weekly for studying	32/26	36/35	– /11	– /0	28/12	0/6	0/0	– /0
Does not use a computer at all for studying	52/50	54/59	– /76	– /100	72/60	100/88	100/88	– /100

Table 8. *Basic computer program usage skills in small households, by household type, in %*

	Men				Women			
One person/two persons	–30 years	30–39 years	40–59 years	60+ years	–30 years	30–39 years	40–59 years	60+ years
Uses the keyboard at least fairly fluently	91/97	100/88	44/79	/40	97/96	100/96	86/84	– /0
Uses a mouse fairly well	100/94	92/88	25 /78	– /85	85/88	93/81	56/80	– /48
Uses word processing at least fairly well	100/82	100/71	27/37	– /60	98/86	82/73	76/68	– /49
Has never used word processing	0/7	0/12	73/46	– /22	0/7	5/11	17/25	– /26
Uses a graphics program at least fairly well	72/75	46/46	0/29	– /28	67/58	31/18	23/40	– /49
Has never used a graphics program	24/9	35/27	100/46	– /63	9/29	27/61	51/49	– /51
Uses an e-mail program at least fairly well	85/50	60/61	0/48	– /28	54/49	56/49	24/50	– /49
Has never used an e-mail program	11/36	27/27	100/43	– /72	30/45	37/39	69/41	– /51
Uses an Internet browser at least fairly well	75/62	48/38	0/30	– /0	47/37	8/17	0/5	– /0
Has never used an Internet browser	22/25	27/58	100/70	– /78	42/55	85/70	76/74	– /100

Table 9. *Technical computer usage skills in small households, by household type, in %*

	Men				Women			
One person/two persons	–30 years	30–39 years	40–59 years	60+ years	–30 years	30–39 years	40–59 years	60+ years
Able to update and install programs	72/56	40/50	0/31	– /51	20/5	18/15	10/9	– /49
Able to copy programs onto discs at least fairly well	72/38	53/53	0/25	– /35	24/21	9/30	36/20	– /0
Has never copied programs onto discs	18/33	27/43	82/65	– /65	51/71	83/57	47/71	– /51
Able to copy files from the Internet, even if with some difficulty	46/17	48/6	0/5	– /10	6/2	9/5	0/0	– /0
Copying from the internet is not possible	28/32	17/54	17/38	– /65	37/46	47/51	49/47	– /74
Able to use English-language programs, though partly by guessing things	98/78	72/59	0/40	– /43	80/80	72/69	54/18	– /25

Table 10. *Proportions of small households agreeing at least fairly well with statements describing their introduction to information technology, by household type, in %*

	Men				Women			
One person/two persons	–30 years	30–39 years	40–59 years	60+ years	–30 years	30–39 years	40–59 years	60+ years
Has learned things alone	75/62	68/60	51/45	– /67	29/28	21/28	10/24	– /49
Has applied things learned at work	85/63	66/45	0/42	– /24	35/45	39/41	27/23	– /740
Has been instructed and encouraged by others	68/72	63/50	0/49	– /81	66/64	68/65	58/62	– /74
Has attended computer courses	29/29	56/62	0/58	– /24	43/2	41/41	38/60	– /49

Table 11. *Proportions of small households agreeing at least fairly well with statements regarding their opinions on technology, by household type, in %*

	Men				Women			
One person/two persons	–30 years	30–39 years	40–59 years	60+ years	– 30 years	30–39 years	40–59 years	60+ years
I am interested in technologyand purchase it as I can afford it	77/72	58/53	30/44	17/29	63/39	37/43	17/31	12/15
I am interested in social issues and culture more than technology	20/35	48/57	61/66	68/65	60/75	88/78	81/85	84/91
I am a do-it-yourself person	65/68	83/78	62/85	70/70	77/76	81/67	77/71	79/82
I only purchase new appliances if my friends and relatives already have them	4/24	19/23	7/12	17/23	8/13	26/10	14/13	1/15

The following tables on families were drawn up in the same manner as those concerning small households. The data are classified only by age and sex.

Table 12. *Number of calls made from home by respondents living in families, proportion and duration of mobile phone calls and mastery of telephone functions, by age and sex, in %*

	Men						Women					
	Age, years						Age, years					
	10–14	15–19	20–29	30–39	40–49	50+	10–14	15–19	20–29	30–39	40–49	50+
No. Of calls from home less than 1/week	9	8	5	5	4	10	6	1	3	1	2	7
No. Of calls from home less than 10/week	54	52	38	55	53	67	47	38	36	42	56	69
No. Of calls from home over 20/week	18	16	30	14	15	13	13	22	25	24	13	13
No. Of calls from home over 30/week	6	8	14	9	8	7	4	13	12	8	4	3
At least 2/3 from a mobile phone	–	38	36	27	19	8	–	26	38	12	13	0
Mobile phone calls much shorter	–	47	35	40	55	57	–	31	42	52	70	78
Masters home telephone functions well	–	64	65	69	54	51	–	65	46	52	42	34

Table 13. *Respondents living in families agreeing at least fairly well with the telephone usage statements, by age and sex, in %*

	Men					Women				
	Age, years					Age, years				
	15–19	20–29	30–39	40–49	50+	15–19	20–29	30–39	40–49	50+
I only call if I have good reason to do so	73	68	84	88	89	44	44	69	61	69
I easily pick up the phone to call somebody	63	59	42	40	56	69	86	64	58	41
The phone is an essential part of my way of life	66	80	74	68	72	76	84	77	76	77
It is easy for me to call a stranger	76	70	78	76	82	60	81	81	78	70
It is nice to chat on the phone	63	55	30	30	28	83	78	69	64	55
I want to know how my friends are getting on	85	82	45	43	44	95	89	71	61	63

Table 14. *Respondents living in families who have called certain service numbers or participated in TV/radio votes or discussion programmes at least once, by age and sex, in %*

	Men						Women					
	Age, years						Age, years					
Calls	10–14	15–19	20–29	30–39	40–49	50+	10–14	15–19	20–29	30–39	40–49	50+
Call made at least once or twice to:												
Directory inquiries	13	40	72	78	68	50	19	44	53	61	51	49
Timetable inquiries	2	13	22	20	22	20	6	18	32	34	31	28
Bank services replying with recorded messages	0	4	7	12	5	3	0	1	13	10	6	4
Bank services (no recorded message)	0	1	16	26	12	6	1	1	21	12	16	5
TV/radio telephone voting	27	22	26	26	23	24	28	48	39	31	40	27
TV/radio discussion programs	6	3	4	2	5	6	3	2	3	1	3	3

Table 15. *TV viewing by respondents living in families, by age and sex, in %*

	Men						Women					
	Age, years						Age, years					
	10–14	15–19	20–29	30–39	40–49	50+	10–14	15–19	20–29	30–39	40–49	50+
TV viewing minutes/day	221	212	154	130	153	198	236	198	204	155	141	172
% of persons having the TV on in the background	49	47	70	60	50	51	54	53	75	55	50	34
% of persons seldom watching TV	10	13	20	31	29	31	16	23	25	35	40	30
% of persons selecting TV programmes quite carefully	75	71	63	68	81	75	79	81	66	79	83	84
% of persons selecting TV programmes quite carefully and using a video recorder	59	78	57	52	47	26	55	65	55	50	49	25
Able to tune TV/video channels	–	91	74	68	78	57	–	46	40	36	28	30
Rational use of the remote controller	21	13	7	15	18	30	27	14	23	41	49	51
Change channel during commercial breaks	61	57	50	61	61	51	57	63	63	55	41	43
Compulsive channel switchers	15	29	43	24	19	13	16	22	15	3	4	0

Table 16. *Use of teletext facilities by respondents living in families, by age and sex, in %*

	Men						Women					
	Age, years						Age, years					
	10–14	15–19	20–29	30–39	40–49	50+	10–14	15–19	20–29	30–39	40–49	50+
Uses teletext daily	40	60	56	44	46	24	35	31	26	21	11	10
Uses teletext weekly	23	15	21	25	19	16	8	35	29	18	10	7
Never uses teletext	14	4	5	6	11	28	20	9	15	14	39	58
Consults the following teletext pages at least weekly (as a % of those with at least some experience of teletext use):												
News	16	45	64	64	57	54	13	15	39	37	40	39
Weather	17	26	51	54	48	56	10	24	28	34	31	39
Lists of TV programmes	70	80	66	59	41	31	71	70	63	44	28	33
Timetables	2	6	12	5	5	3	1	0	13	3	3	6
Sports news and pools	67	61	68	55	59	53	19	34	22	16	18	20

Table 17. *Home computer use by respondents living in families, by age and sex, in %*

	Men						Women					
	Age, years						Age, years					
	10–14	15–19	20–29	30–39	40–49	50+	10–14	15–19	20–29	30–39	40–49	50+
Uses a computer daily	55	44	43	26	21	10	26	9	13	15	8	9
Uses a computer at best occasionally	11	16	29	21	34	61	12	35	45	43	62	68
Introduced to computer use less than 2 years ago	13	7	32	19	15	0	22	17	39	25	16	0
Uses e-mail daily	6	10	29	11	11	4	0	0	0	2	5	0
Does not use e-mail	78	73	53	69	76	80	96	88	71	88	91	91
Uses the Internet daily	6	12	36	10	9	0	0	0	24	4	1	0
Does not use the Internet	63	53	42	69	77	86	87	68	62	85	91	100
Has used a CD-ROM unit during the past 4 weeks	82	73	79	73	51	31	42	27	47	45	32	10
Has used a CD-ROM unit occasionally	13	11	9	5	31	17	23	34	29	32	13	13
Has used a CD-ROM unit at least 10 times during the past 4 weeks (as a % of all persons who have used it)	48/39	28/17	57/45	15/26	33/17	35/11	19/8	0/0	0/0	27/12	18/6	0/0

Table 18. *Use of basic computer programs by respondents living in families, by age and sex, in %*

	Men						Women					
	Age, years						Age, years					
	10–14	15–19	20–29	30–39	40–49	50+	10–14	15–19	20–29	30–39	40–49	50+
Plays computer games weekly	69	43	45	7	10	10	32	15	0	5	3	0
Does not play computer games at all	3	1	13	43	30	51	6	22	35	40	50	89
Uses word processing weekly	42	41	52	54	46	45	28	28	24	50	36	45
Does not use word processing at all	31	23	21	28	25	22	38	25	43	33	28	42
Uses a spreadsheet program weekly	5	12	35	31	25	22	3	6	6	19	12	5
Does not use spreadsheet program at all	80	64	41	43	55	52	91	83	82	72	74	67
Uses a graphics program weekly	20	20	33	11	13	3	8	5	0	7	2	7
Does not use a graphics program at all	66	59	40	63	66	83	85	89	84	78	85	93
Uses a computer weekly for studying	13	17	39	7	10	5	12	35	31	25	22	5
Does not use a computer at all for studying	74	60	47	90	84	83	65	70	94	87	87	91

Table 19. *Basic computer program usage skills of respondents living in families, by age and sex, in %*

	Men						Women					
	Age, years						Age, years					
	10–14	15–19	20–29	30–39	40–49	50+	10–14	15–19	20–29	30–39	40–49	50+
Uses a keyboard at least fairly fluently	84	86	96	80	77	73	77	79	97	89	84	85
Uses a mouse fairly well	99	97	93	84	82	79	98	96	97	87	70	57
Uses word processing at least fairly well	70	87	84	69	67	60	58	74	66	76	60	48
Has never used word processing	22	3	5	20	20	21	30	8	21	20	26	24
Uses a graphics program at least fairly well	82	90	71	57	52	36	76	74	36	51	34	21
Has never used a drawing program	13	3	14	25	32	43	14	11	50	36	48	60
Uses an e-mail program at least fairly well	12	38	67	43	41	23	5	19	28	27	38	43
Has never used an e-mail program	83	44	27	50	50	64	92	65	58	64	48	55
Uses an Internet browser at least fairly well	30	63	48	33	26	6	17	24	11	15	16	18
Has never used an Internet browser	61	25	40	55	64	82	75	50	66	70	74	77

Table 20. *Technical computer usage skills of respondents living in families, by age and sex, in %*

	Men						Women					
	Age, years						Age, years					
	10–14	15–19	20–29	30–39	40–49	50+	10–14	15–19	20–29	30–39	40–49	50+
Able to update and install programs	33	43	60	46	32	30	10	11	8	13	16	4
Able to copy programs onto discs at least fairly well	19	38	50	41	27	11	12	16	5	23	20	9
Has never copied programs onto discs	74	43	35	50	65	73	85	69	76	66	72	85
Able to copy files from the Internet, even if with some difficulty	14	32	35	18	14	8	3	4	3	6	4	0
Copying from the Internet is not possible	50	40	33	55	46	66	50	36	60	56	50	35
Able to use English-language programs, though partly by guessing things	42	74	65	56	45	28	38	75	72	58	41	43

Table 21. *Access to a car, mobile phone and home computer, by household size and gross incomes category in November 1996 and November 1997, in %*

Gross incomes FIM/month	1 person			2 persons			3 persons			4 persons			5+ persons			All		
	Car	Mobile phone	Micro-computer	Car	Mobile phone	Micro-computer	Car	Mobile phone	Micro-computer	Car	Mobile phone	Micro-computer	Car	Mobile phone	Micro-computer	Car	Mobile phone	Micro-computer
Incomes category 1996																		
Less than FIM 6 000	30	30	9	54	32	24	77*	40*	26*	100*	30*	0*	100*	0*	0*	37	30	12
FIM 6 001–10 000	38	33	10	66	13	9	89	39	19	87*	45*	29*	91	34	26	61	26	13
FIM 10 001–15 000	63	42	28	83	46	10	91	33	25	92	70	26	96	43	40	82	45	22
FIM 15 001–20 000	85*	40	49	92	56	24	100	67	40	95	59	32	96	43	40	94	56	34
Over FIM 20 000	75*	100	34	94	61	45	92	82	64	98	70	69	98	73	69	96	73	60
Cannot say	100*	27*	0*	74*	38*	19*	100*	86*	27*	100*	65*	50*	100*	74*	40*	71	51	24
Incomes category 1997																		
Less than FIM 5 000	25	43	20	45	46	25	37*	40*	50*	100*	50*	50*	–	–	–	29	43	22
5 001–9 000	49	48	12	69	43	16	84	66	29	85*	65*	40*	100*	86*	29*	62	50	17
9 001–15 000	63	63	35	84	65	26	94	73	40	91	76	48	97	78	62	79	67	35
15 001–21 000	90*	70*	50*	91	74	36	92	82	54	94	76	63	93	70	60	92	75	49
Over FIM 21 000	67*	100*	33*	91	78	59	82	85	64	91	88	84	92	81	85	88	83	68
Cannot say	54*	45*	18*	92	70	24	91	77	49	90	79	68	94	85	59	87	73	44

* Based on a small number of observations

Table 22. *Equipment resources of households by size and EU support area, in %*

	1–2 persons						3+ persons					
	Helsinki region	Other 0 support areas	Obj. 2 areas	Obj. 5b areas	Obj. 6 areas	Total	Helsinki region	Other 0 support areas	Obj. 2 areas	Obj. 5b areas	Obj. 6 areas	Total
Car	49	54	56	67	59	56	88	94	96	97	99	95
TV	98	100	89	89	91	94	100	97	99	98	97	98
Remote controller	79	72	68	72	77	74	99	90	92	88	91	91
Teletext facilities	51	46	47	46	48	47	81	73	79	65	62	71
Video recorder	56	50	52	42	52	51	93	90	88	89	92	90
CD player	52	42	39	26	29	39	88	59	67	60	54	64
Fixed phone	85	79	74	85	78	80	98	99	98	94	97	97
Mobile phone	36	36	37	29	34	35	66	49	66	60	52	57
Computer	30	26	5	8	4	16	40	37	48	40	27	37
Modem	13	8	2	3	1	6	35	15	18	15	7	17
E-mail	10	7	2	0	1	4	33	11	9	9	4	12
Satellite/cable TV	67	43	40	21	14	39	46	51	37	24	25	37
No. of households	*330 160*	*432 527*	*253 910*	*284 634*	*221 144*	*1 522 374*	*117 037*	*222 296*	*106 982*	*179 872*	*151 439*	*777 626*

Table 23. *Equipment resources of households by size and type of living area, in %*

	1-2 persons					3+ persons				
	Urban centre	Suburb	Built-up area	Sparsely populated area	Total	Urban centre	Suburb	Built-up area	Sparsely populated area	Total
Car	49	54	58	77	56	97	94	94	97	95
TV	89	96	96	98	94	97	100	97	97	98
Remote controller	66	76	78	79	74	79	94	91	90	91
Teletext facilities	41	50	49	52	47	58	74	62	71	69
Video recorder	36	64	49	50	51	89	91	91	88	90
Cd player	37	48	33	25	39	75	79	64	39	64
Fixed phone	79	79	79	89	80	89	99	97	95	97
Mobile phone	31	40	32	34	35	62	59	61	50	57
Computer	16	19	15	8	16	43	49	38	26	41
Modem	7	9	3	2	6	17	22	16	10	17
E-mail	3	7	2	2	4	13	18	13	6	13
Satellite/Cable TV	46	54	23	7	39	60	50	26	21	37
No. of households	*471 334*	*566 120*	*261 897*	*223 023*	*1 522 374*	*52 933*	*327 439*	*173 404*	*223 851*	*777 627*

Table 24. *Equipment resources of households by size and major region of Finland, in %*

	1–2 persons					3+ persons				
	Uusimaa	Southern Finland	Eastern Finland	Middle Finland	Northern Finland	Uusimaa	Southern Finland	Eastern Finland	Middle Finland	Northern Finland
Car	48	60	62	68	47	93	94	100	93	96
TV	99	95	96	96	76	100	98	98	98	94
Remote controller	80	69	81	81	59	97	88	93	87	90
Teletext facilities	51	43	59	58	32	83	68	55	64	70
Video recorder	55	47	57	50	46	94	88	92	86	89
CD player	50	37	35	26	36	70	65	49	68	64
Fixed phone	83	81	77	80	73	98	96	99	93	95
Mobile phone	37	31	32	49	30	56	61	46	59	65
Computer	29	12	9	8	14	46	41	30	48	36
Modem	13	4	5	2	1	26	15	11	12	18
E-mail	10	3	1	1	1	24	8	8	10	12
Satellite/cable TV	58	35	18	39	29	50	34	23	39	31
No. of households	*425 914*	*589 185*	*163 653*	*191 405*	*152 217*	*209 377*	*244 720*	*138 830*	*99 984*	*84 715*

Table 25. *Computer use, mastery of computer skills and use of the phone and other communication media etc., by age and EU support area, in % of the population group*

	Under 30 years					Over 30 years				
	Helsinki region	Other 0 support areas	Obj.2 areas	Obj.5b areas	Obj.6 areas	Helsinki region	Other 0 support areas	Obj.2 areas	Obj.5b areas	Obj.6 areas
Computer use:										
At home regularly during the past 6 months	51	36	28	30	19	25	19	14	12	7
Uses computer **at work** (employed persons)	75	54	50	40	46	63	56	61	39	45
Masters:										
E-mail	50	39	23	19	23	27	24	19	13	14
The Internet	50	40	33	26	27	19	17	11	10	7
Word processing	74	65	57	55	57	46	38	35	22	23
A graphics program	65	59	60	55	55	35	27	22	19	18
Telephone:										
10 calls/week/home	79	60	54	43	47	48	42	52	45	38
The phone important at work	75	41	41	49	34	63	61	57	56	49
Others:										
Has used teletext facilities	63	60	53	54	52	48	44	49	41	40
Cash card etc.	80	82	87	84	82	93	82	86	76	77
Mail order shopping	34	46	60	56	69	30	41	42	47	46
Population group, persons	*249 814*	*398 779*	*189 889*	*272 511*	*210 070*	463 627	*750 976*	*427 923*	*597 411*	*483 069*

Table 26. *Computer use, mastery of computer skills and use of the phone and other communication media etc., by age and type of living area, in % of the population group*

	Under 30 years				Over 30 years			
	Urban centre	Suburb	Built-up area	Sparsely populated area	Urban centre	Suburb	Built-up area	Sparsely populated area
Computer use:								
At home regularly during the past 6 months	34	37	32	28	11	20	15	11
Uses computer **at work** (employed persons)	82	47	48	35	65	58	45	41
Masters:								
E-mail	51	34	28	15	23	25	17	11
The Internet	46	39	34	23	15	17	12	6
Word processing	78	64	53	52	34	39	32	20
A graphics program	62	62	54	54	23	30	22	16
Telephone:								
10 calls/week/home	71	61	55	38	49	48	40	39
The phone important at work	53	49	46	35	61	60	59	48
Others:								
Has used teletext facilities	49	61	58	53	36	51	42	40
Cash card etc.	89	82	75	87	85	87	83	71
Mail order shopping	57	44	60	47	37	40	47	43
Population group, persons	*230 973*	*593 787*	*264 444*	*231 858*	*441 069*	*1 101 145*	*582 527*	*598 265*

Table 27. *Computer use, mastery of computer skills and use of the phone and other communication media etc., by age and major region of Finland, in % of the population group*

	Under 30 years					Over 30 years				
	Uusimaa	Southern Finland	Eastern Finland	Middle Finland	Northern Finland	Uusimaa	Southern Finland	Eastern Finland	Middle Finland	Northern Finland
Computer use:										
At home regularly during the past 6 months	45	28	24	38	35	24	12	9	15	16
Uses computer **at work** (employed persons)	64	53	38	61	44	61	52	42	46	54
Masters:										
E-mail	43	28	23	28	35	29	17	17	14	21
The Internet	43	33	33	38	37	19	11	11	8	16
Word processing	67	58	55	68	67	45	30	24	27	32
A graphics program	61	56	55	66	64	35	21	18	20	25
Telephone:										
10 calls/week/home	71	56	52	43	52	47	43	42	46	45
The phone important at work	62	46	29	48	41	64	56	56	54	54
Others:										
Has used teletext facilities	61	58	55	47	60	47	42	50	44	39
Cash card etc.	78	85	86	85	80	87	80	82	80	82
Mail order shopping	40	48	65	55	65	34	43	49	40	46
Population group, persons	*347 213*	*478 160*	*196 040*	*155 593*	*144 056*	*690 660*	*975 060*	*392 151*	*374 019*	*291 116*

Table 28. *Respondents' opinions on trends in the information society, data protection and use of the telephone, by age and EU support area, in % of the population group*

Opinions	Under 30 years					Over 30 years				
	Helsinki region	Other 0 support areas	Obj.2 areas	Obj.5b areas	Obj.6 areas	Helsinki region	Other 0 support areas	Obj.2 areas	Obj.5b areas	Obj.6 areas
Progress:										
Has not been able to keep pace with information technology	16	22	13	30	44	43	47	49	52	48
Information technology increases the number of jobs	34	34	39	32	28	28	23	28	20	15
Not bothered by the flood of information	94	91	94	95	89	89	83	87	89	85
Data protection:										
Social security number asked much too often	45	46	47	38	50	62	48	52	46	55
An honest citizen has nothing to fear regarding data protection	60	74	78	74	72	58	68	72	74	73
The authorities can obtain personal data from registers (disagreed)	81	82	72	71	77	76	80	75	72	68
Telephone use:										
To ask how friends are getting on	94	85	75	87	79	64	57	63	53	53
Nice to chat on the phone	72	68	57	63	52	57	49	60	49	55
Only calls with good reason	51	54	61	60	70	71	74	69	73	73
Easy to call a stranger	84	69	73	81	68	76	71	78	77	72

Table 29. *Respondents' opinions on trends in the information society, data protection and use of the telephone, by age and type of living area, in % of the population group*

Opinions	Under 30 years				Over 30 years			
	Urban centre	Suburb	Built-up area	Sparsely populated area	Urban centre	Suburb	Built-up area	Sparsely populated area
Progress:								
Has not been able to keep pace with information technology	11	24	33	31	49	44	48	54
Information technology increases the number of jobs	30	35	36	30	19	26	19	22
Not bothered by the flood of information	96	90	95	90	83	89	85	86
Data protection:								
Social security number asked much too often	53	44	48	34	53	58	43	48
An honest citizen has nothing to fear regarding data protection	70	71	71	75	72	65	72	71
The authorities can obtain personal data from registers (disagreed)	78	78	77	77	75	78	75	68
Telephone use:								
To ask how friends are getting on	90	82	90	80	60	60	55	52
Nice to chat on the phone	61	65	66	60	53	57	47	50
Only calls with good reason	49	61	58	60	63	71	75	80
Easy to call a stranger	79	72	76	75	75	76	73	73

Table 30. *Respondents' opinions on trends in the information society, data protection and use of the telephone, by age and major region of Finland, in % of the population group*

Opinions	Under 30 years					Over 30 years				
	Uusimaa	Southern Finland	Eastern Finland	Middle Finland	Northern Finland	Uusimaa	Southern Finland	Eastern Finland	Middle Finland	Northern Finland
Progress:										
Has not been able to keep pace with information technology	20	21	36	23	23	43	49	45	55	55
Information technology increases the number of jobs	28	23	17	18	22	28	23	17	18	22
Not bothered by the flood of information	90	94	94	93	91	86	86	89	87	83
Data protection:										
Social security number asked much too often	50	43	47	45	50	55	49	57	45	52
An honest citizen has nothing to fear regarding data protection	64	75	77	79	62	58	73	75	71	72
The authorities can obtain personal data from registers (disagreed)	81	78	75	68	82	76	79	73	70	68
Telephone use:										
To ask how friends are getting on	93	82	84	83	79	60	55	58	60	55
Nice to chat on the phone	72	59	63	67	58	53	49	54	59	55
Only calls with good reason	51	60	60	53	66	74	72	74	70	67
Easy to call a stranger	81	69	69	82	78	73	77	72	70	77

Table 31. *Size of the material in the sample and when adjusted to the national level, by EU support area, type of living area, size of household and age*

Households N = 1 081

	1–2 persons						3+ persons					
	Helsinki region	Other 0 support areas	Obj.2 areas	Obj.5b areas	Obj.6 areas	Total	Helsinki region	Other 0 support areas	Obj.2 areas	Obj.5b areas	Obj.6 areas	Total
Adjusted	330 160	432 527	253 910	284 634	221 144	1 522 375	117 037	222 296	106 982	179 872	151 439	777 626
Non-adjusted	98	166	93	105	94	556	65	143	81	130	106	525

	1–2 persons					3+ persons				
	Urban centre	Suburb	Built-up area	Sparsely populated area	Total	Urban centre	Suburb	Built-up area	Sparsely populated area	Total
Adjusted	471 334	566 120	261 897	223 023	1 522 374	52 933	327 439	173 404	223 851	777 627
Non-adjusted	153	218	95	90	556	40	226	123	136	525

	1–2 persons						3+ persons					
	Uusimaa	Southern Finland	Eastern Finland	Middle Finland	Northern Finland	Total	Uusimaa	Southern Finland	Eastern Finland	Middle Finland	Northern Finland	Total
Adjusted	425 914	589 185	163 653	191 405	152 217	1 522 374	209 377	244 720	138 830	99 984	84 715	777 626
Non-adjusted	138	209	77	73	59	556	111	178	86	75	75	525

Respondents N = 2 363

	Under 30 years						Over 30 years					
	Helsinki region	Other 0 support areas	Obj.2 areas	Obj.5b areas	Obj.6 areas	Total	Helsinki region	Other 0 support areas	Obj.2 areas	Obj.5b areas	Obj.6 areas	Total
Adjusted	249 814	398 779	189 889	272 511	210 070	1 321 063	463 627	750 976	427 923	597 411	483 069	2 723 006
Non-adjusted	120	263	135	213	171	902	196	403	230	340	292	1 461

	Under 30 years					Over 30 years				
	Urban centre	Suburb	Built-up area	Sparsely populated area	Total	Urban centre	Suburb	Built-up area	Sparsely populated area	Total
Adjusted	230 973	593 787	264 444	231 858	1 321 062	441 069	1 101 145	582 527	598 265	2 723 006
Non-adjusted	118	382	187	215	902	186	590	312	373	1 461

	Under 30 years						Over 30 years					
	Uusimaa	Southern Finland	Eastern Finland	Middle Finland	Northern Finland	Total	Uusimaa	Southern Finland	Eastern Finland	Middle Finland	Northern Finland	Total
Adjusted	347 213	478 160	196 040	155 593	144 056	1 321 062	690 660	975 060	392 151	374 019	291 116	2 723 006
Non-adjusted	187	319	148	119	129	902	312	519	231	206	193	1 461

KATSAUKSIA – ÖVERSIKTER – REVIEWS

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KATSAUKSIA

Does Modern Information Technology Select Its Users?

This review considers the types of people that the new information and communications technology selects as its users. The main objectives are a) to describe the process by which individual households and persons emerge as users of information and communications technology, b) to look at regional differences in the use of this technology and c) to examine the extent to which the information and communications technology resources of households increased between November 1996 and November 1997. The report is based on interviews with 2 362 persons representing 1 082 households. Resources were examined separately for the cases of single persons, two-person households and families, and the respondents' experiences, skills and opinions were classified on the basis of age, sex and whether they were living in small households or families. The results are presented in over 100 diagrams, which allow rapid appreciation of the situation. This report is intended as a sequel to the review "The Finns and Modern Information Technology" 1997/7.

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