



MAY 2000

8147.0

USE OF THE INTERNET BY HOUSEHOLDERS

AUSTRALIA

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CONTENTS

	<i>page</i>
Notes	2
MAIN FEATURES	
Household access to computers and the Internet	3
Frequency of household computer and Internet use	5
Characteristics of adult computer users	6
Characteristics of adult Internet users	8
Frequency of adult computer and Internet use	10
Adults making selected electronic transactions	11
Adults working from home	11
Internet shopping for private use	12
FEATURE ARTICLE	
Household and adult use of information technologies	14
ADDITIONAL INFORMATION	
Explanatory Notes	17

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NOTES

FORTHCOMING ISSUES

<i>ISSUE</i>	<i>RELEASE DATE</i>
August 2000	21 November 2000

ABOUT THIS PUBLICATION

This publication presents statistics about the extent of computer and Internet access in Australia. It also presents a profile of adult users at home, work and other locations.

ABOUT THE SURVEY

The survey was conducted during May 2000, collecting information from 3,200 adults randomly selected from private households. Households in remote and sparsely settled parts of Australia are excluded from the survey. The survey will be conducted again in August and November 2000.

ACCURACY OF ESTIMATES OF MOVEMENT

Users are advised to take care when comparing the data shown in this publication with similar data in previous issues of *Use of the Internet by Householders, Australia* (Cat. no. 8147.0). Some of the data items have high standard errors, so observed differences may be the result of sampling error. Users comparing data in this publication with data from earlier releases should refer to paragraphs 10 and 11 of the Explanatory Notes.

PUBLICATION RELEASES

Data from the quarterly surveys have been released via the publication *Use of the Internet by Householders, Australia* (Cat. no. 8147.0). This publication is available for each quarter from May 1998 to February 2000. In addition, the publication *Household Use of Information Technology, Australia* (Cat. no. 8146.0) is available for 1998 and 1999. This annual publication presents results based upon data consolidated from the four quarterly surveys of each year. This consolidation allows detail for smaller target groups to be presented, such as estimates at State and Territory level.

END OF THE QUARTERLY DATA SERIES

The four surveys conducted during 2000 will be the last quarterly Household Use of Information Technology surveys conducted by the ABS. The Population Survey Monitor (PSM), through which the data is currently collected, will be conducted for the last time for the November quarter 2000. The ABS is currently developing an annual survey vehicle to replace the existing PSM series.

SYMBOLS AND OTHER USAGES

ABS	Australian Bureau of Statistics
ATM	Automatic Teller Machine
EFTPOS	Electronic Funds Transfer at Point of Sale
TAFE	Tertiary and Further Education
*	estimates have a relative standard error between 25% and 50%
**	estimates have a relative standard error of 50% or more
—	nil or rounded to zero
n.a	not available

Brian Pink
Acting Australian Statistician

MAIN FEATURES

HOUSEHOLD ACCESS TO COMPUTERS AND THE INTERNET

By May 2000 over half (54%) of the households in Australia, or 3.8 million households, had access to a computer at home. The number of households with access to the Internet at home rose to 2.3 million, or 33% of all Australian households.

Differences in the level of access can be seen when groups of households with distinct characteristics are compared. By May 2000:

- Households with higher incomes were more likely to have access to a computer or the Internet at home. Households with incomes of \$50,000 or more were twice as likely to have access to a computer at home than households with incomes under \$50,000 (75% compared to 37%) and nearly three times as likely to have access to the Internet at home (51% compared to 18%).
- Households with children under 18 years were more likely to have computer access than households without children under 18 years. Although 42% of households without children under 18 years of age had access to a computer at home, the proportion of households with children under 18 years that had access was considerably higher (75%). Similarly for home Internet access, 25% of households without children under 18 years had access compared to 46% of households with children under 18 years.
- Households in metropolitan areas were more likely than households in other areas to have access at home, particularly Internet access. Half (51%) of the households outside metropolitan areas had access to a computer at home compared to 59% of households in metropolitan areas. One-quarter (26%) of households outside metropolitan areas had access to the Internet at home compared to 37% of households in metropolitan areas.

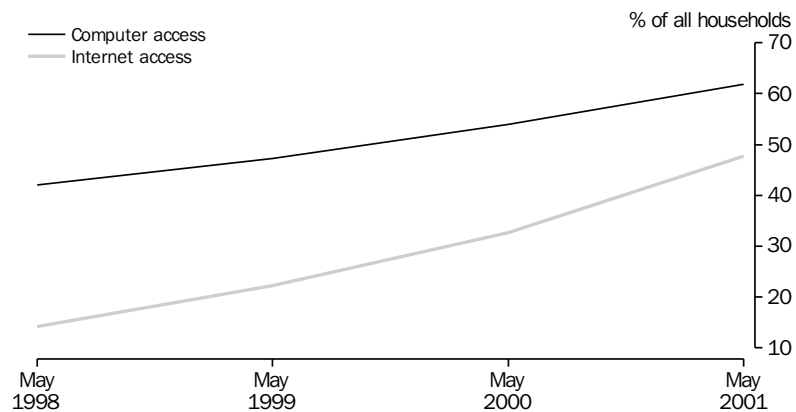
1 HOUSEHOLD ACCESS TO COMPUTERS OR THE INTERNET(a)

	Households with access to a computer at home			Households with access to the Internet at home		
	May 1998	May 1999	May 2000	May 1998	May 1999	May 2000
	%	%	%	%	%	%
Household income						
\$0-\$49,999	27	30	37	6	10	18
\$50,000 or more	68	70	75	28	39	51
Households						
With children under 18 years	61	66	75	19	30	46
Without children under 18 years	31	36	42	11	17	25
Region						
Metropolitan areas	45	52	56	18	25	37
Other areas	37	39	51	8	17	26
Total	42	47	54	14	22	33

(a) Proportions are of all households in each category.

The following graph indicates the increase in the proportion of households with access to a computer or the Internet at home. Included is an estimate for May 2001, based upon the reported intentions of those households without home access at May 2000. While the proportion of households with home access continues to rise for both computers and the Internet, the difference is decreasing. By May 2000, 60% of households with a home computer also had home Internet access. This was an increase from one-third (33%) in May 1998 to just under one-half (47%) in May 1999.

2 HOUSEHOLD COMPUTER AND INTERNET ACCESS



FREQUENCY OF HOUSEHOLD COMPUTER AND INTERNET USE

Well over half (59%) of the households with access to a computer at home used it daily. A high proportion (91%) of households used their home computer at least once a week. Households with Internet access tended to use their home computer more frequently than households without Internet access. Households with home Internet access were far more likely than households without home Internet access to use their home computer daily (76% compared to 32%).

For households with access to the Internet, almost half (47%) accessed the Internet daily, while a very high proportion (95%) accessed the Internet at least once a week.

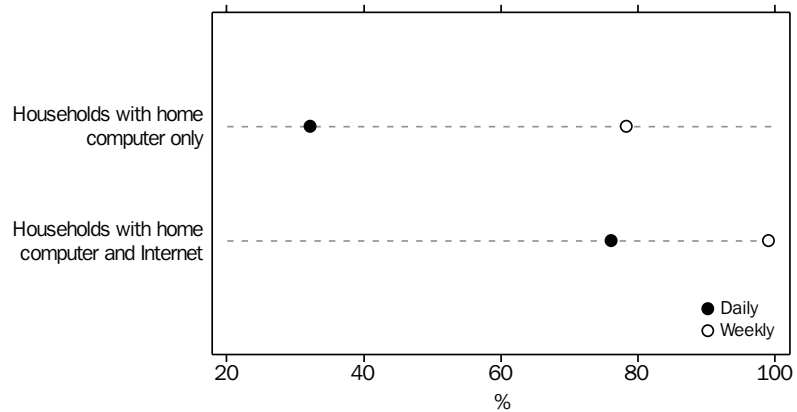
3 FREQUENCY OF HOUSEHOLD COMPUTER USE AND INTERNET ACCESS

<i>Frequency</i>	<i>Computer use(a)</i>	<i>Internet access(b)</i>
	%	%
Daily	59	47
2-6 times a week	26	40
Once a week	6	8
Once every 2 weeks	3	2
Once every month or less	4	2
Not used	2	.
Total	100	100

(a) Proportions are of all households with access to a computer at home, May 2000.

(b) Proportions are of all households with access to the Internet at home, May 2000.

4 FREQUENCY OF HOME COMPUTER USE—MAY 2000



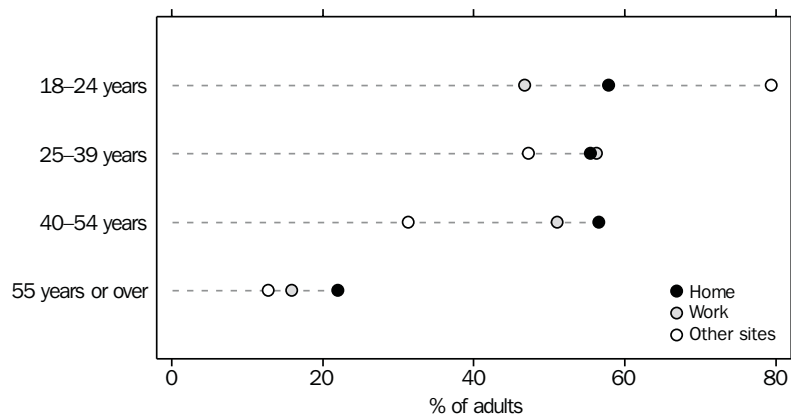
CHARACTERISTICS OF ADULT COMPUTER USERS

Two-thirds (67%) of the adults in Australia, or 9.2 million adults, used a computer during the 12 months to May 2000. The most popular sites of use were either home (47% of all adults) or work (43% of all adults). Over a third of all adults (38%) had used a computer at sites other than home or work. The most popular of these sites were a neighbour, friend or relative's home (22% of all adults), library (14% of all adults) and TAFE or other tertiary institution (11% of all adults).

Differences in the likelihood that an adult is a computer user can be seen when the characteristics of the adult or the site of use are compared. During the 12 months to May 2000:

- Adults aged 55 or over were far less likely to have used a computer than adults aged 18 to 54. Only 31% of adults aged 55 or over had used a computer compared to 72% of adults aged 40 to 54, 83% of adults aged 25 to 39 and 90% of adults aged 18 to 24. For adults aged 55 or over the most popular site of use was home. Home or work were the most popular sites of use for adults aged 25 to 54. Adults aged 18 to 24 were more likely to have used a computer at sites other than home or work.
- There was only a slight difference in the likelihood that males and females had used a computer regardless of the site of use. Overall, 70% of adult males used a computer compared to 64% of adult females.
- Adults who were employed were twice as likely as those who were not employed to have used a computer (81% compared to 41%). Even at home, employed adults were nearly twice as likely as unemployed adults to have used a computer (56% compared to 30%).
- Adults with incomes of \$40,000 or more were far more likely to have used a computer than adults with incomes under \$40,000 (88% compared to 61%). Both at home and work, there were large differences in the likelihood that an adult had used a computer between these two income groups.
- Adults residing in metropolitan areas were more likely to have used a computer than adults residing outside metropolitan areas (70% compared to 61%). Large differences occurred in the likelihood that a computer was used both at home and work.

5 ADULT COMPUTER USE, BY AGE—MAY 2000



6 ADULT COMPUTER USE, BY SITE(a)(b)(c)

	Home	Work	Other	Any site
	%	%	%	%
Age				
18-24 years	58	47	79	90
25-39 years	55	56	47	83
40-54 years	56	51	31	72
55 years or over	22	16	13	31
Sex				
Males	51	45	39	70
Females	43	40	36	64
Employment status				
Employed	56	62	43	81
Not employed	30	—	28	41
Income				
0-\$39,999	41	32	38	61
\$40,000 or more	67	78	44	88
Region				
Metropolitan areas	50	45	39	70
Other areas	41	38	36	61
Total	47	43	38	67

(a) Computer used during the 12 months to May 2000.

(b) Proportions are of all adults in each category.

(c) Adults can nominate more than one site if applicable.

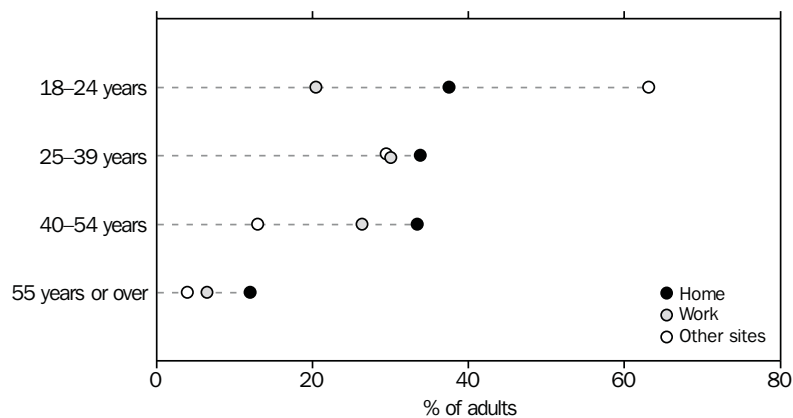
CHARACTERISTICS OF ADULT INTERNET USERS

In the 12 months to May 2000, 46% of the adults in Australia, or 6.4 million adults, accessed the Internet. Just over 28% of all adults accessed the Internet at home while 21% accessed the Internet at work and 23% accessed the Internet at sites other than home or work. The most popular of these sites were a neighbour, friend or relative's home (14% of all adults), TAFE or other tertiary institution (7% of all adults) and library (5% of all adults).

Differences in the likelihood that an adult is an Internet user can be seen when the characteristics of the adult or the site of access are compared. During the 12 months to May 2000:

- The likelihood that an adult was an Internet user decreased as age increased. Of the adults aged 18 to 24, 77% were Internet users compared to 60% of adults aged 25 to 39 and 45% of adults aged 40 to 54. Only 16% of adults aged 55 or over were Internet users. Adults aged 18 to 24 were far more likely to have accessed the Internet at sites other than home or work, while home was the most popular site of access for adults in the other age groups.
- Adult males were more likely than adult females to have been Internet users (51% compared to 41%).
- Adults who were employed were more than twice as likely as those who were not employed to have been Internet users (59% compared to 23%). Home (35%) and work (32%) were the most popular sites of access for adults who were employed. Adults who were not employed were just as likely to have accessed the Internet at other sites (15%) as at home (15%).
- Adults with incomes of \$40,000 or more were far more likely to have been Internet users than adults with incomes under \$40,000 (70% compared to 40%). There was little difference in the likelihood that adults in either income group accessed the Internet at sites other than home and work. However, adults with incomes of \$40,000 or more were far more likely than adults with incomes under \$40,000 to have accessed the Internet both at work (50% compared to 13%) and home (47% compared to 23%).
- Adults residing in metropolitan areas were more likely to have accessed the Internet than adults residing outside metropolitan areas (49% compared to 40%). The largest differences occurred in the likelihoods that the Internet was accessed either at home or work.

7 ADULT INTERNET ACCESS, BY AGE—MAY 2000



8 ADULT INTERNET ACCESS, BY SITE(a)(b)(c)

	Home %	Work %	Other %	Any site %
Age				
18–24 years	38	20	63	77
25–39 years	34	30	29	60
40–54 years	33	26	13	45
55 years or over	12	6	4	16
Sex				
Males	33	24	25	51
Females	24	19	20	41
Employment status				
Employed	35	32	27	59
Not employed	15	—	15	23
Income				
0–\$39,999	23	13	23	40
\$40,000 or more	47	50	24	70
Region				
Metropolitan areas	31	24	23	49
Other areas	22	16	21	40
Total	28	21	23	46

(a) Internet accessed during the 12 months to May 2000.

(b) Proportions are of all adults in each category.

(c) Adults can nominate more than one site if applicable.

FREQUENCY OF ADULT
COMPUTER AND INTERNET
USE

A high proportion of adults (82%) who used a computer at home did so at least once a week. At work, adults who used a computer were even more likely (91%) to have used it at least once a week. At sites other than home or work, only one-third (34%) of adults who used a computer did so at least once a week while 59% only used it once a month or less often.

Similar patterns of use were seen among Internet users. At home, 86% of adults who accessed the Internet did so at least once a week and 80% of adults who accessed the Internet at work did so at least once a week. At other sites, only 33% of adults who accessed the Internet did so at least once a week while 61% of adults who accessed the Internet at these sites did so only once a month or less often.

9 FREQUENCY OF ADULT COMPUTER USE AND INTERNET ACCESS

<i>Frequency</i>	<i>Site(a)</i>		
	<i>At home</i>	<i>At work</i>	<i>At other sites</i>
	<i>%</i>	<i>%</i>	<i>%</i>
COMPUTER USE(b)			
Daily	37	69(c)	7
2-6 times a week	33	16	15
Once a week	13	5	12
Once every 2 weeks	5	2	6
Once a month or less	12	7	59
Total	100	100	100
INTERNET ACCESS(d)			
Daily	32	42(c)	6
2-6 times a week	37	28	16
Once a week	17	10	10
Once every 2 weeks	5	5	5
Once a month or less	9	15	61
Total	100	100	100

(a) Adults can nominate more than one site if applicable.

(b) Proportions are of all adults using a computer at a particular site, May 2000.

(c) Will include adults who work less than 7 days each week.

(d) Proportions are of all adults accessing the Internet at a particular site, May 2000.

ADULTS MAKING SELECTED ELECTRONIC TRANSACTIONS

Only a small proportion of the adult population used the Internet to access government services (8% of all adults) or to pay bills or transfer funds (8% of all adults). In comparison, just over half the adult population (51%) used the telephone to pay bills or transfer funds, two-thirds (67%) used EFTPOS and three out of every four adults (74%) used ATMs.

10 ADULTS MAKING SELECTED ELECTRONIC TRANSACTIONS(a)

	%
Accessed the Internet to use government services(b)	8
Paid bills or transferred funds via the Internet(c)	8
Paid bills or transferred funds via telephone(c)	51
Paid bills or withdrew funds via EFTPOS(c)	67
Transferred or withdrew funds via ATM(c)	74

(a) Proportions are of all adults.

(b) Period covers the 12 months to May 2000.

(c) Period covers the 3 months to May 2000.

ADULTS WORKING FROM HOME

At May 2000, 6% of employed adults had an agreement with their employer to work from home on an ongoing basis. On average, these adults spent almost one-third of their total working hours actually working from home.

To enable them to work from home, over a third (38%) of these adults had use of a portable PC while almost one-third (32%) could access their employer's computer system via a modem. Under a third (31%) took home information related to their work on floppy disks or CDs. While 39% reported using a mobile phone to work from home, only 4% reported this as the only form of technology that enabled them to work from home. One in every seven adults working from home (13%) did not use any of the technologies listed in table 11 to work from home.

11 ADULTS WORKING FROM HOME

	%
Have an agreement with employer to work from home on an ongoing basis(a)	6
Technologies that allow employee to work from home(b)	
Access to employer's computer system at home via a modem	32
Use of portable PC (either personal or employer provided)	38
Use of floppy disks/CD ROMS containing work related information	31
Mobile phone	39

(a) Proportions are of all employed adults.

(b) Proportions are of all employed adults who have an agreement to work from home on an ongoing basis.

INTERNET SHOPPING FOR
PRIVATE USE

In the 12 months to May 2000, 6% of all Australian adults purchased or ordered goods or services for their own private use via the Internet. These adults will be referred to as Internet shoppers. Overall 802,000 adults were Internet shoppers during the 12 months to May 2000, an increase of 152,000 adults on the May 1999 estimate of 650,000 adults.

Differences among Internet shoppers in the 12 months to May 2000 included:

- Adults aged 55 years or over were unlikely to have been Internet shoppers (3%).
- Adult males were twice as likely as adult females to have been Internet shoppers (8% of adult males compared to 4% of adult females).
- Employed adults were far more likely to have been Internet shoppers than unemployed adults (8% compared to 2%).
- Adults with incomes of \$40,000 or more were much more likely to have been Internet shoppers than adults with incomes under \$40,000 (16% compared to 3%).
- There was little difference in the likelihood that adults in metropolitan areas had been Internet shoppers compared to adults in other areas (6% compared to 5%).

12 CHARACTERISTICS OF ADULT INTERNET SHOPPERS(a)(b)

	<i>Internet shoppers</i>	<i>Internet users</i>
	%	%
Age		
18–24 years	*5	77
25–39 years	8	60
40–54 years	7	45
55 years or over	3	16
Sex		
Males	8	51
Females	4	41
Employment status		
Employed	8	59
Not employed	*2	23
Income		
0–\$39,999	3	40
\$40,000 or more	16	70
Region		
Metropolitan areas	6	49
Other areas	5	40
Total	6	46

(a) Proportions are of all adults in each category.

(b) These adults purchased or ordered goods and services for their private use during the 12 months to May 2000.

Features of the purchases/orders made in the 12 months to May 2000 included:

- Books and magazines (36% of all Internet shoppers), computer software (18% of all Internet shoppers) and music (18% of all Internet shoppers) were the most popular types of purchase/order.
- One-third (33%) of all Internet shoppers purchased or ordered on only one occasion.
- Over one-third (35%) of Internet shoppers spent \$100 or less and another 36% spent between \$101 and \$500. However 11% of Internet shoppers spent over \$1,000.
- Four out of every five (81%) Internet shoppers paid for all or part of their purchase/order online by giving their credit card details.
- Over half (57%) of the Internet shoppers purchased/ordered goods or services only from Australia while 31% purchased/ordered only from overseas.

13 CHARACTERISTICS OF INTERNET PURCHASES AND ORDERS(a)

	%
Location of purchase/order	
Australia only	57
Overseas only	31
Both Australia & Overseas	12
Number of occasions on which purchase/order made	
One	33
Two to four	42
Five or more	25
Value of purchases/orders	
0-\$100	35
\$101-\$500	36
\$501-\$1,000	17
\$1,001 or more	*11
Don't know	*2
Paid online for good and services	81
Type of goods/services purchased/ordered	
Books or magazines	36
Computer software	18
Music	18
Computer hardware	14
Food and groceries	13
Holidays	12
Entertainment or tickets to entertainment	*9
Clothing or shoes	*9
Other goods/services	35

(a) Proportions are of all adults having purchased or ordered goods or services for private use via the Internet in the 12 months to May 2000.

FEATURE ARTICLE

HOUSEHOLD AND ADULT USE OF INFORMATION TECHNOLOGIES

This is the first of a series of articles which will be included in each of the remaining quarterly releases for 2000. For this quarter, the article will feature some of the data being collected during the year relating to household and adult use of information technologies. At this stage the data can only be considered indicative since much of it relates to rare characteristics which are difficult to measure reliably in sample surveys. Similar data will be presented again in the publication *Household Use of Information Technology, Australia* (Cat. no. 8146.0) which is due for release in mid 2001. This annual publication combines the results from the four quarterly surveys for the year, providing more reliable estimates of rare characteristics.

HOUSEHOLD TECHNOLOGIES

While virtually all Australian households now have telephones, over half have at least one mobile phone, typically a digital mobile. Other popular communication technologies are answering machines, present in two out of every five households, and facsimile machines, present in one out of every five households. In terms of entertainment technologies, a third of Australian households have a dedicated games machine. Fewer than one in every five Australian households has pay TV and very few households currently have DVD players.

COMPUTER OWNERSHIP

There are more than 5 million computers in households throughout Australia with every second household now having access to a computer at home. Almost three-quarters of these households only have one computer at home. How disposable are our home computers? Two out of every five households with a home computer either upgraded their computer or purchased a new computer during the previous 12 months. Only a third indicated that they were likely to upgrade their computer or purchase a new computer in the upcoming 12 months.

COMPUTERS AND PERIPHERAL TECHNOLOGIES

Of those households in Australia with a home computer, over half have an IBM, or IBM compatible Pentium and over a third have an older IBM, or IBM compatible computer. The majority have a n Apple computer. Three-quarters of the households with a home computer have a CD ROM drive, but few have a DVD drive. The most common peripheral technologies are printers and modems. Almost four in every five households with a home computer also have a printer and two-thirds have a modem. One-quarter of households with a home computer also have scanners, but very few have CD burners or Webcam/PC cameras.

WHY DON'T HOUSEHOLDS HAVE COMPUTERS?

More than 3 million Australian households are without access to a computer at home. Well over half of these households reported that either there was no need for a computer in the household or that the householders had no interest in computers. For one-quarter of households without a computer the relatively high cost of purchasing a computer was the main reason the household did not have one.

INTERNET ACCESS

The number of Australian households with home Internet access continues to grow rapidly. However, newer methods of Internet access have yet to gain a presence in Australian homes. Nearly all household access to the Internet is made via a computer/modem. More than half of the computers in Australian homes, over 2.5 million computers, are used to access the Internet. Only one in every six households with home Internet access uses more than one computer to access the Internet at home.

WHY DON'T HOUSEHOLDS HAVE HOME INTERNET ACCESS?

More than 4.5 million Australian households are without home Internet access. Half of these households reported that either there was no use for the Internet in the household or that the householders lacked interest in the Internet. For one-fifth of these households the relatively high cost of Internet access was the main reason the household did not have access.

INTERNET SERVICE PROVIDERS (ISPs)

One-quarter of the households with home Internet access changed their ISP during the previous 12 months. Typically only two different ISPs were used, although one-fifth of those households who changed their ISP had at least three different ISPs in the last year. Almost two-thirds of those households which changed their ISP did so to obtain a better deal while a quarter changed their ISP because of poor service and technical support.

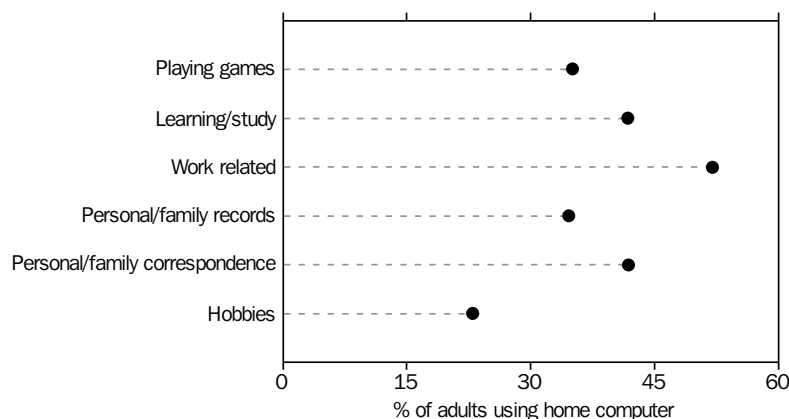
ACCESS VERSUS USE

More than 8 million adults have access to a computer at home. However, one out of every five of these adults do not use the home computer. For the Internet, the proportion with access who do not use it is slightly higher than for computer access and use. One out of every four adults do not use the Internet at home even though they have access there. Older adults were less likely to use either a computer or the Internet at home. Of those adults aged 55 years or over who resided in households with access, one-third did not use the home computer and a slightly higher proportion did not access the Internet at home.

HOME COMPUTER ACTIVITIES

For adults using a computer at home, one-third reported spending most of their time on work related activities and one-fifth spent most of their time on learning or study activities. The graph below shows the types of activities undertaken by adult computer users at home.

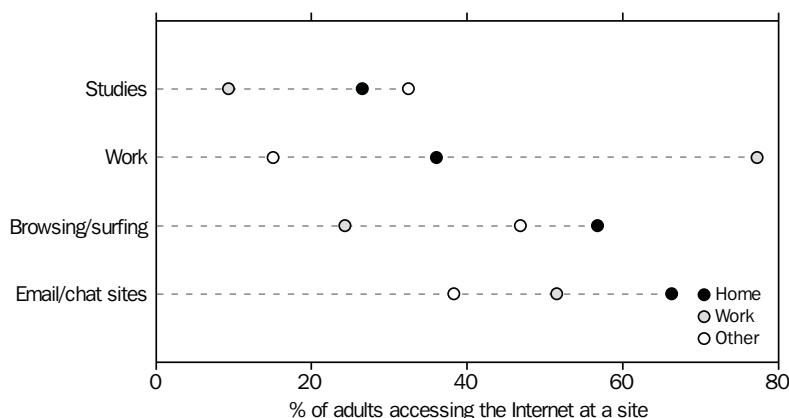
F1 ADULT HOME COMPUTER ACTIVITIES



INTERNET ACTIVITIES

Adults who accessed the Internet did so for a number of reasons. The more popular activities are shown in the graph below. There were differences in the popularity of an activity between the sites of access. Using email or chat sites was more popular at home than work and accessing the Internet for learning or study activities was most popular at sites other than home or work, such as libraries or tertiary institutions. General browsing or surfing was far less popular at work than at home or other sites.

F2 ADULT INTERNET ACTIVITIES



GOVERNMENT INTERNET SERVICES

Although the range of government services which can be accessed via the Internet is growing, few Australians have taken advantage of this access for their own private purposes. To date, the most popular services accessed for private purposes were to find information or services relating to unemployment or taxation and to pay bills, such as rates and car registrations.

INTERNET PURCHASING

Internet purchasing, although being tried by a growing number of Australian Internet users, is still to become a significant part of overall retail activity. Over a 12 month period Australia's 802,000 Internet shoppers on average purchased or ordered for private use via the Internet on four occasions. More than half of these Internet shoppers spent less than \$250 in total over the year. Although it is difficult to estimate the value of all purchases and orders made for private purposes over the 12 month period, indications are that the total expenditure is around \$0.5 billion.

WHY NOT PURCHASE?

More than 5 million adult Internet users in Australia did not purchase or order via the Internet for private purposes over the previous 12 months. Almost half of these adults felt they had no need or just hadn't bothered to try Internet shopping. Another quarter of these adults said the main reason they had not tried Internet shopping was because they were concerned about the security of purchasing over the Internet.

EXPLANATORY NOTES

POPULATION SURVEY MONITOR

1 The Population Survey Monitor is a quarterly household survey of approximately 3,200 private households throughout Australia. During 2000, the Population Survey Monitor will carry questions about the use of information technology (IT). In each household, an adult (person aged 18 or over) is selected at random to complete the survey. A trained interviewer conducts a personal interview with the selected adult to obtain information relating to both the household's and the selected adult's use of IT.

SCOPE AND COVERAGE

2 All usual residents in private households are included in the scope of the PSM. However, households in sparsely settled and Indigenous areas are excluded from the survey. The exclusion of persons in these households has only a minor impact on the aggregate estimates produced for individual States and Territories. The exception is the Northern Territory where such persons account for approximately 20% of the population.

HOUSEHOLD DATA

3 In addition to gathering data on the use of IT, the survey collected data on the characteristics of the household. These characteristics include:

- household income;
- household family classifications;
- State and Territory; and
- region (metropolitan or ex-metropolitan).

PERSONAL DATA

4 The survey also collected data on the characteristics of the randomly selected adult, namely:

- age;
- gender;
- highest educational qualification;
- income;
- labour force status; and
- occupation.

DEFINITION OF HOUSEHOLD

5 A group of one or more persons in a private dwelling who consider themselves to be separate from other persons in the dwelling, and who make regular provision to take meals separately from those other persons. Lodgers who receive accommodation and meals are not treated as separate households. A household may consist of any number of family and non-family members.

DEFINITION OF METROPOLITAN

6 Refers to capital city statistical divisions. These delimit an area which is stable for general statistical purposes. The boundary is defined to contain anticipated development of the city for a period of 20 years. They contain more than just the urban centre, and represent the city in the wider sense.

ACCURACY OF DATA

7 As the estimates in this publication are based on information obtained from a sample drawn from households in the surveyed population, the estimates are subject to sampling variability; that is, they may differ from the figures that would have been produced if all households in Australia had been included in the survey. One measure of the likely difference is given by the standard error (SE), which indicates the extent to which an estimate might have varied by chance because only a sample of households was included. There are about two chances in three that a sample estimate will differ by less than one SE from the figure that would have been obtained if all households had been included in the survey, and about 19 chances in 20 that the difference will be less than two SEs.

8 The SEs for some statistics are relatively high and users are advised to exercise caution in interpreting these statistics. Estimates with SEs of 25% or more have been marked with an asterisk. The following table of SEs relate to estimates of the number of households and estimates of the number of adults.

Size of estimate '000	Standard error for persons 18+			Standard error for households		
	May 1998	May 1999	May 2000	May 1998	May 1999	May 2000
5	3.3	3.6	3.6
10	6.9	7.0	7.1	4.7	5.1	5.1
20	9.8	10.5	10.5	6.7	7.3	7.3
50	15.1	17.0	17.0	9.9	11.3	11.3
100	20.8	23.8	23.8	13.3	15.5	15.5
200	27.9	32.4	32.4	17.8	20.9	20.9
500	40.4	46.6	46.6	25.2	30.2	30.2
800	48.4	55.1	55.2	29.5	35.0	35.0
1 000	53.0	59.5	59.5	32.3	39.2	39.2
1 500	60.0	67.7	67.7	37.1	43.4	43.4
2 000	68.2	73.8	73.8	41.8	50.1	50.1

EXAMPLE USING THE STANDARD ERROR TABLE

9 Consider the estimate of the number of adults who purchased or ordered goods and services for private use via the Internet in the 12 months to May 2000. The estimate of 802,000 adults has a standard error around 55,000. This means there are about two chances in three that the true value (i.e. the value that would have been obtained from a complete census) is within the range 747,000 to 857,000 adults. There are about 19 chances in 20 that the true value is in the range 692,000 to 912,000 adults.

COMPARING DATA OVER
TIME

10 Users are advised to take care when comparing the data from this publication to similar data from previous issues. High standard errors for estimates of movements may mean that an apparent difference between figures is not actually significant. An approximate value for the standard error (SE) of the difference between two estimates (x-y) may be calculated by the following formula:

$$SE(x - y) = \sqrt{[SE(x)]^2 + [SE(y)]^2}$$

11 For example, the increase in the number of adults between May 1999 and May 2000 who were Internet shoppers is 152,000. The standard error on this movement is about 70,000. Therefore we can say that there are 2 chances in 3 that the true value is within the range 82,000 to 222,000 and 19 chances in 20 that the true value is in the range 12,000 to 292,000. If the range does not include the value zero, the movement can be considered to be statistically significant.

ACKNOWLEDGMENT

12 Australian Bureau of Statistics (ABS) publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated. Without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the *Census and Statistics Act 1905*.

RELATED PUBLICATIONS

13 Other ABS publications on the production and use of information technology and telecommunication goods and services in Australia are:

Household Use of Information Technology, Australia (Cat. no. 8146.0)
1998 and 1999 issues

Use of the Internet by Householders, Australia (Cat. no. 8147.0)
February, May, August and November 1999 and February 2000 issues

Use of Information Technology on Farms, Australia, Preliminary, 1998-99 (Cat. no. 8134.0)

Information Technology, Australia, Preliminary 1998-99
(Cat. no. 8143.0)

Business Use of Information Technology, Australia, 1997-98
(Cat. no. 8129.0)

Government Use of Information Technology, 1997-98 (Cat. no. 8119.0)

AVAILABILITY OF
UNPUBLISHED STATISTICS

14 As well as statistics included in this publication, the ABS has a range of data on the use of selected information technologies in households. Inquiries about these statistics should be made by telephoning John Ovington on Canberra 02 6252 5189 or email john.ovington@abs.gov.au.

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