



CENTER *for* RURAL POLICY *and* DEVELOPMENT

June 2008

The 2007 Minnesota Internet Survey *Tracking the progress of broadband*

Introduction & methodology

Since 2001, the Center for Rural Policy and Development has conducted an annual survey of Greater Minnesota to identify and understand the adoption of computer and Internet technology, in particular, the adoption of broadband. In 2005, a simultaneous and identical survey for the seven-county Twin Cities metro area was added. With these two surveys we have been able to obtain for the last three years a fairly complete picture of computer, Internet and broadband adoption throughout the state, with the ability to compare rural Minnesota's progress against that of the Twin Cities.

The survey was conducted via telephone interview in December 2007 and January 2008 across the entire state using samples generated through a random-digit dialing method for the Twin Cities area and Greater Minnesota. The data collection process yielded 757 completed interviews from the 80 counties defining Greater Minnesota and 776 from the seven-county Twin Cities area. The data were weighted for age, based on U.S. Census data. The survey results have a margin of error at the 95% confidence level of $\pm 3.5\%$ for both the rural and metro samples.

A quick look at the major findings

- Data from the survey indicates that the percentage of rural households subscribing to broadband increased 13 percentage points, from 39.7% at the end of 2006 to 52.3% at the end of 2007. Statewide, 57.8% of households reported subscribing to broadband, up from 49.0% at the end of 2006.
- 73% of rural Minnesota households reported owning at least one working computer, compared to 75.9% of Minnesota households overall.
- 68.2% of rural households maintained an Internet connection, compared to 71.5% of all Minnesota households.

A PDF of this report can be downloaded from the Center's web site at www.ruralmn.org.

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The Center for Rural Policy and Development, based in St. Peter, Minn., is a private, not-for-profit policy research organization dedicated to benefiting Minnesota by providing its policy makers with an unbiased evaluation of issues from a rural perspective.

- From 2001 to 2005, computer and Internet adoption remained relatively flat, but from 2005 to 2007, the percentage of households owning computers and subscribing to an Internet connection have both increased noticeably. Also, 94.3% of computer owners now have their computers connected to the Internet, the highest percentage yet. Broadband continues its steady rise.
- While rural Minnesota is in general still behind the Twin Cities metro area in computer, Internet and broadband adoption, that gap is closing. The 2007 data shows the smallest gap yet in all three technologies.
- The socio-demographic factors of age and income are still important determiners of who has computers, Internet and broadband. The older age groups and lower-income groups are still less likely to have computers, Internet or broadband, but they show continued growth in adoption each year.
- People with broadband are much more active online. In the early years of the study, there was little difference between those using dial up or those using broadband in the amount of time spent online or in the percentage of households engaging in a particular activity. In recent years, however, we have seen an ever-widening gap between those two groups in both hours spent online and in the number of activities.

Adoption continues to rise on all fronts

The Minnesota Internet Study has been conducted over enough years that a fairly clear and interesting pattern has emerged showing the public’s behavior when it comes to how and why they use computers, the Internet and broadband. Over the first five years, from 2001 to 2005, the number of households in rural Minnesota owning computers stayed nearly flat, but the 2006 and 2007 surveys showed a definite increase (Figure 1 & Table 1), possibly due to the continuing decline in home computer prices and the increase in things to do on the Internet. At the same time, Internet

adoption in rural households moved in lockstep with computer ownership, as it must, but the percentage of households that own computers but do not subscribe to the Internet has progressively shrunk, to point where the gap has gone from 14 percentage points in 2001 to less than 5 percentage points in 2007.

The noticeable story of Figure 1, however, is the continued dramatic rise in the adoption of broadband by Minnesota households, particularly in rural Minnesota households. In rural Minnesota, broadband adoption rose from 27.4% of households in 2005 to 39.7% in 2006 and 52.3% of households in late 2007, while in the seven-county Twin Cities area, the adoption rate went from 43.9% to 57.0% to 62.9% in the same time period. Over the years, rural Minnesota has lagged in broadband adoption for a variety of possible reasons, including the older average age of the population, lower average income, and the technical and financial issues of providing high-speed broadband to a population spread out over

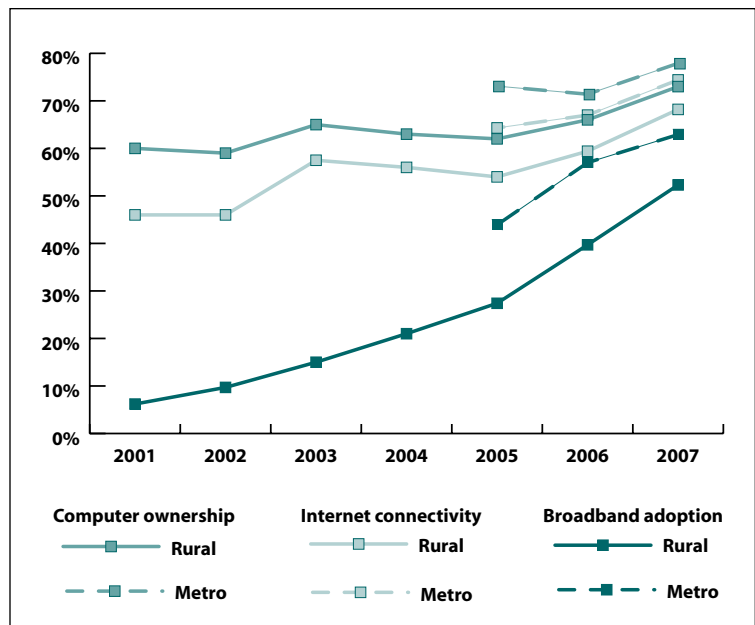


Figure 1 & Table 1: Growth was seen in the adoption rates in all three areas: computers, the Internet and broadband.

		2001	2002	2003	2004	2005	2006	2007
Computer	Rural	60%	59%	65%	63%	62%	66%	73%
	Metro					73.1%	71.4%	77.9%
Internet	Rural	46%	46%	57.5%	56%	54%	59.4%	68.2%
	Metro					64.3%	67.0%	74.4%
Broadband	Rural	6.2%	9.7%	15.0%	21.0%	27.4%	39.7%	52.3%
	Metro					43.9%	57.0%	62.9%

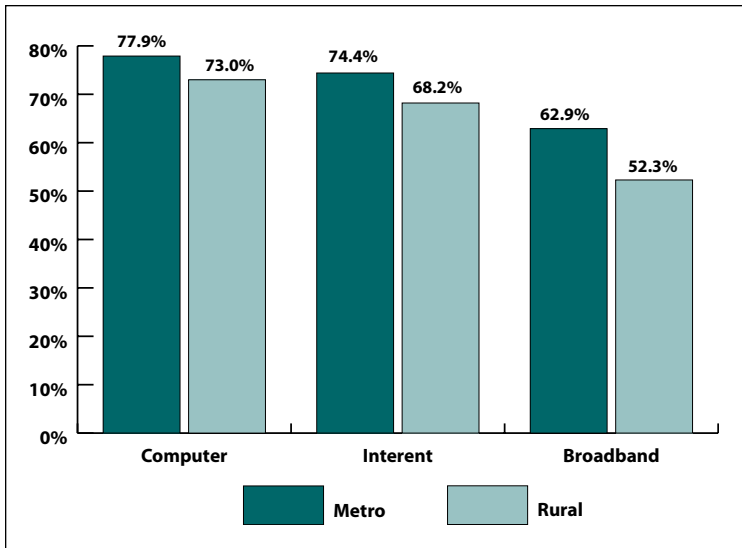


Figure 2: Computer ownership, Internet connectivity and broadband adoption are still higher in the Twin Cities metro area, but the rest of Minnesota is closing the gap.

comparatively greater distances. This year’s survey, however, indicates that while the seven-county Twin Cities area is still ahead, rural regions are closing the gap in all three areas: computer ownership, Internet adoption and broadband adoption. In 2005 and 2006, the gap between metro and rural broadband users in terms of percentage of households with broadband was about 17 percentage points. In 2007 that difference was down to about 10 percentage points. That 7-percentage-point drop is in fact larger than the survey’s $\pm 3.5\%$ margin of error, indicating a genuine change.

Figure 3: Dial-up users in both rural and metro regions gave “too expensive” as the most common reason for not purchasing broadband.

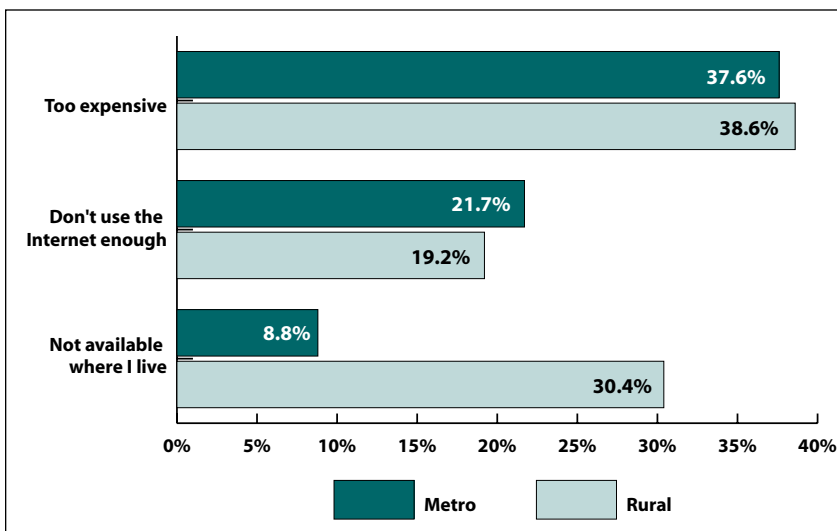


Figure 2 compares the rates for both rural and metro.

As in previous reports, this study looked at the regional differences in computer ownership, Internet adoption and broadband adoption among northern, central and southern Minnesota (defined by area codes). When we looked at these rates initially, there was a disparity between regions, but over the years this gap has closed to the point that this year there was virtually no difference among the regions.

Among Internet users, dial-up service still has more of a presence (albeit a small presence) in rural Minnesota than in the Twin Cities, with 21.8% of households with Internet service using dial up compared to 15.5% in the Twin Cities. The reasons for continuing to use dial-up service indicate a difference between the two groups, however (Figure 3). While both groups gave “too expensive” as the most common reason for not purchasing broadband (38.6% for rural, 37.6% for metro), and the percentage of people saying “don’t use the Internet enough” were virtually the same (19.2% for rural, 21.7% for metro), nearly one-third of rural dial-up users gave “it’s not available in my area” as the answer, compared to only 8.8% of dial-up users in the Twin Cities. To put things in perspective, by looking at availability among all Internet subscribers, 6.4% of rural households subscribing to the Internet reported that broadband availability was a problem, while 1.2% of Twin Cities Internet subscribers said the same.

Figure 4 shows the number of broadband providers reported by Internet users in their areas. Among rural Internet users, 4.1% reported having no providers in their area compared to less than 1% in the Twin Cities. (The difference between these figures and those cited above may be because a broadband provider can be in the area but not able to provide service to that particular home.) In comparison, 28.4% of rural Internet users and 36.6% of Twin Cities Internet users reported having three or more providers in their area. Interestingly, however, nearly one-third in both rural Minnesota and the Twin Cities said they did not know how many providers were in their area.

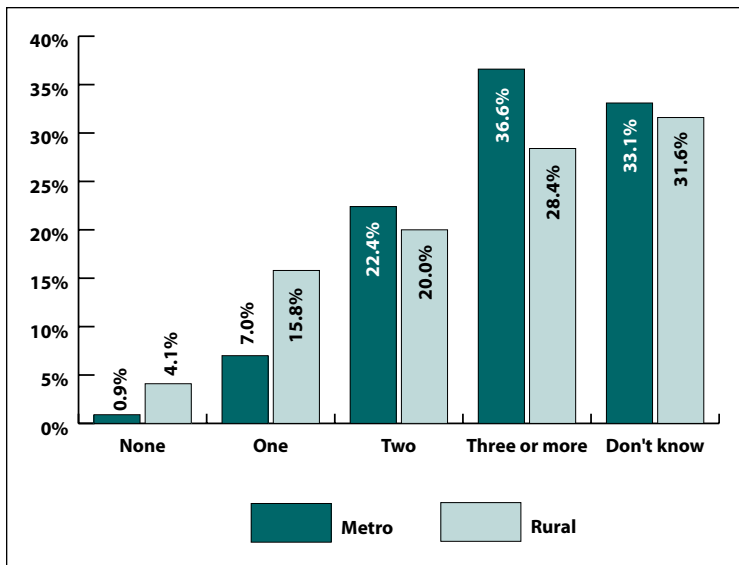


Figure 4: Very few households reported not having any providers in their area, while close to one-third said they didn't know how many were available.

Table 2: The average prices for Internet service and the prices at which dial-up users would switch.

How much do you pay for Internet?				
	Rural		Metro	
	Dialup	Broadband	Dialup	Broadband
Mean	\$17.49	\$38.73	\$16.45	\$40.61

At what price would you be willing to switch?		
	Rural	Metro
Mean	\$28.25	\$29.90

Table 3: The percentage of dial-up and broadband users engaging in various activities online.

	Rural		Metro	
	Dial up	Broadband	Dial up	Broadband
Send and receive email	92.8%	97.5%	91.1%	99.4%
Purchase something online	52.3%	75.5%	48.9%	75.6%
Access news web sites	57.7%	81.8%	62.2%	85.4%
Check the weather	65.5%	88.7%	60.0%	85.2%
Research medical information	60.9%	71.7%	60.0%	68.6%
Contact a legislator	10.9%	17.4%	16.7%	22.1%
Find out about community meetings	17.3%	29.5%	11.1%	29.3%
Take a class online	9.1%	17.7%	4.4%	16.2%
Search for employment	23.4%	40.7%	31.1%	47.1%
Download music or video files	23.4%	51.8%	31.1%	62.5%
Do work for employer at home	11.8%	40.2%	20.2%	48.3%
Earn income in some other way	4.5%	9.1%	3.4%	13.3%

Price was still an issue among dial-up users. The average price at which rural dial-up users would be willing to switch to broadband was \$28.25, while the average Twin Cities switch price was \$29.90. Comparing these prices to the average prices broadband users reported paying (Table 2), there is still a gap of about \$10 between what dial-up users reported they would like to pay and what broadband users reported paying. At the same time, when dial-up users were asked at what price they would be willing to switch to broadband, more than 40% statewide said they were not interested in switching at all.

Online activities

Comparing the activities rural and metro Internet users engage in online, metro Internet users were somewhat more likely to do things online, but only slightly. The largest difference was that metro Internet users were more likely to download music and videos and to do work for their employers from home. Rural Internet users were slightly more likely to take online classes, check the weather and look for medical information.

When we examine the types of activities Internet users are engaging in by the type of Internet connection, however, the gap between dial-up users and broadband users becomes dramatically apparent: those with broadband are using the Internet much more, compared to those who are using dial-up. Statewide, dial-up Internet users reported spending on

average 7 hours a week online, while broadband Internet users reported an average of 17.4 hours a week. While use of email is nearly universal (92.7% of dial-up users compared to 98.6% of broadband users statewide), from there it becomes apparent that broadband users are more engaged — sometimes much more engaged — in everything online (see Table 3). This trend has only become more distinct

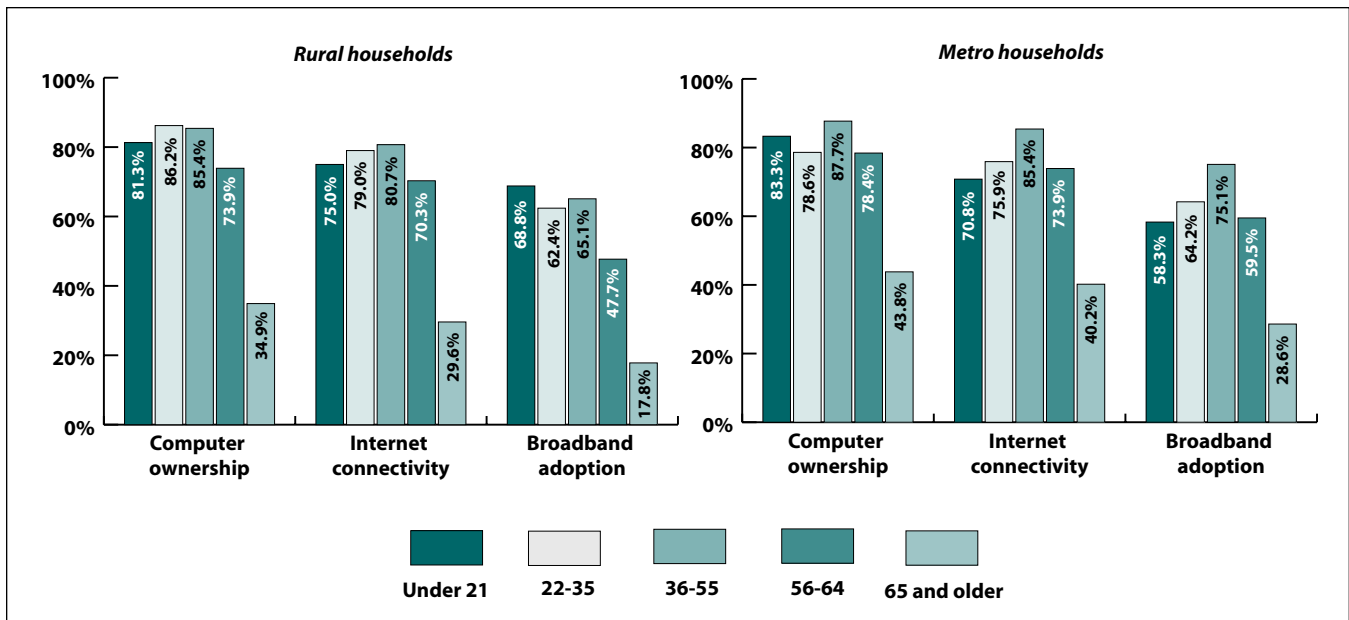


Figure 5: Age is still a leading predictor in the rate of computer ownership and Internet and broadband adoption, but each group shows a steady increase.

over the years for many activities. Two years ago, the 2005 study showed a 15-point gap between rural dial-up and broadband users in the percentage checking the news online. In the current study that gap had widened to 24 percentage points. Likewise, in making an online purchase, the gap between rural dial-up and broadband users was 10 percentage points in 2005 and 23 percentage points in 2007.

Broadband users in 2007 were more than three times as likely as dial-up users to do work for their employer from home, and they were more than twice as likely to download music and videos. They were also more than twice as likely to look for employment online, take an online class, or earn income in some way other than through their regular employment. The study found broadband users were also more likely to contact their legislators, look up legislation and check on community meetings online.

Socio-demographic factors continue, but not as pronounced

As in past years, this study examines some of the factors determining why households do or do not have computers, Internet or broadband connections, and as in the past, the most significant factors appear to be age and income. But here again, groups that have been behind in the past are catching up. Figure 5 shows that in rural Minnesota and the Twin Cities,

the age groups are clumped fairly close together for computers, the Internet and broadband. Only the 65 and over age group still lags behind, but even this group is advancing compared to 2006 rates. The simple explanation may be the aging population. While individuals who are already seniors are taking to the technology for the first time, as the middle-age groups continue to grow older, these people, who have been ready and willing adopters of new computer and communications technology over the years will, of course, bring their technology with them, making growth in the older age groups inevitable.

The influence of income, on the other hand, does not have an inevitable solution (Figure 6). Rates of technology adoption still show a strong connection to the level of income in both rural and metro Minnesota, but adoption rates for each income group have increased over the years. The 2007 survey found that of those in rural Minnesota with a household income of less than \$25,000, 34.1% had a computer and 20.2% had broadband, compared to 2006, when 30.3% had computers and 13.6% had broadband.

Interestingly, the study found that within the lower income groups, rural households tended to have computers, Internet connections and broadband more often than metro households. For example, in the under-\$25,000 income group in the Twin Cities metro area, 26.0% had computers and 17.8% had broadband.

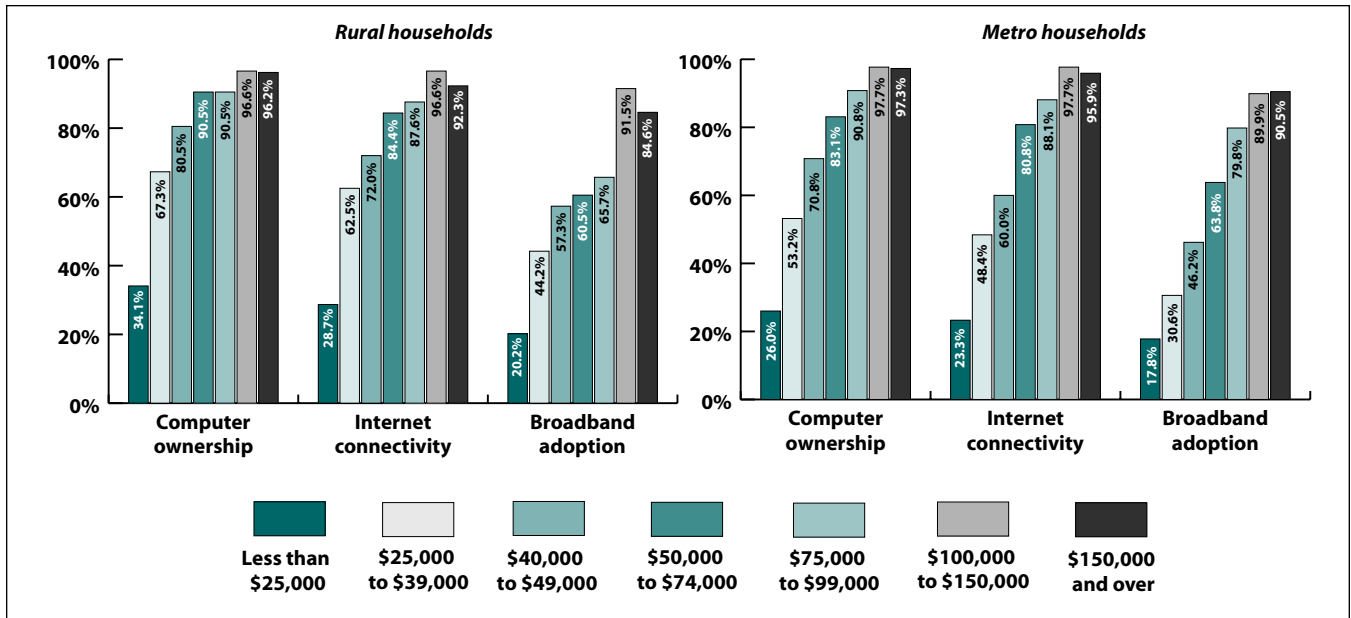
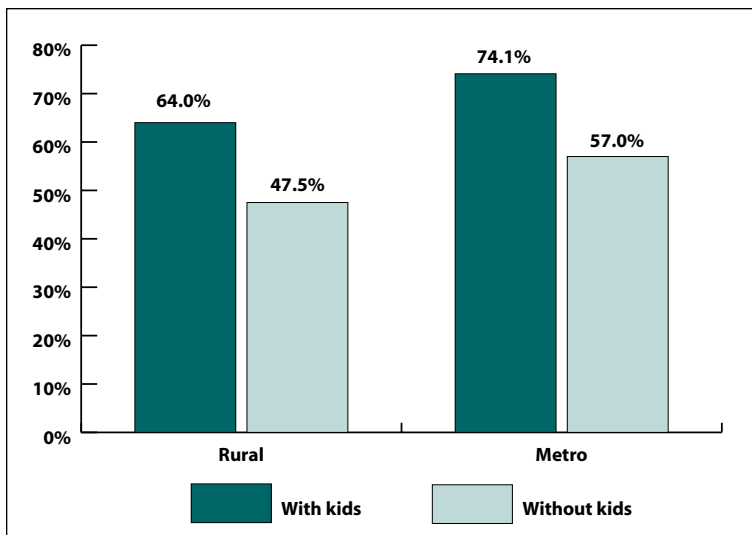


Figure 6: Income is another leading indicator affecting technology adoption.

Only in the higher income groups did more metro households tend to surpass rural households.

Another factor that appears to affect whether a household has broadband or not is the presence of school-age children. The question was asked how many children were in the household between the ages of 6 and 18. When the answers were cross-tabulated against whether a household also had broadband, the results in both rural and metro areas were a higher rate of broadband adoption in households with school-age children (Figure 7).

Figure 7: The presence of school-age children continues to have an impact on whether a household purchases broadband.



Conclusions

Looking at the results of the seven surveys conducted over the years, two findings are immediately apparent. First, from the initial Minnesota Internet Study in 2001 until the latest survey, broadband adoption in rural Minnesota has gone from barely 6% to over 52%, following a typical technology adoption S-curve (Figure 8) where the technology takes off after a certain critical-mass percentage of the population has adopted it, as described in Everett M. Rogers' theory regarding diffusion of innovations (1962).

Second, when the survey began to include the Twin Cities area in 2005, the differences between Twin Cities and rural Minnesota households in the percentage of households with computers, Internet connections and especially broadband connections were immediately apparent. The 2007 survey shows that there are still differences, but rural areas are catching up. Availability is still an issue to those in rural areas who do not have broadband but want it, but only 6.6% of households with Internet said broadband was unavailable to them.

Age and income are still the best indicators as to whether a person has a computer, the Internet or broadband, more so even than location. Adoption rates in the 65+ age group continue to increase, particularly

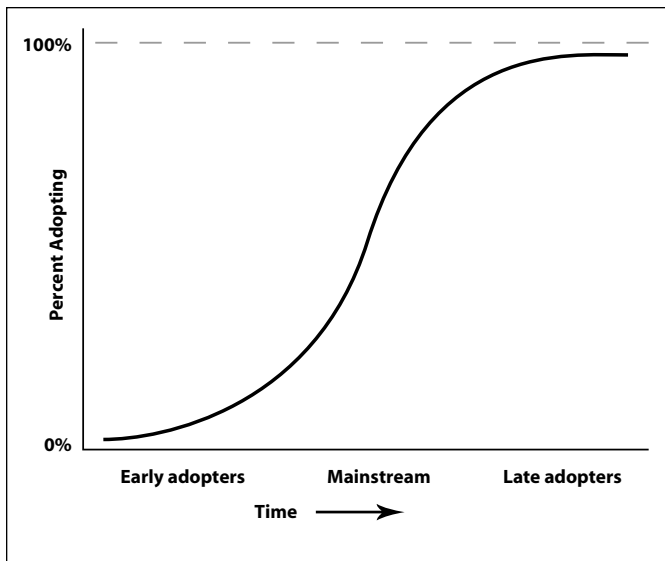


Figure 8: Technology adoption typically follows an S-shaped curve where adoption rates start out small with early adopters, increase rapidly when mainstream adopters jump in, then level off with the final addition of late adopters.

as today's seniors are introduced to computers and broadband and as those in the middle-age groups bring their technology along with them into the older age groups. Income is less easily addressed. It is possible that computers and Internet access will never reach a price that everyone can afford. The study showed, however, that there is growth in the lowest income groups and that in fact a larger percentage of households in the lower income groups had computers and Internet access in the rural areas than in the metro area.

This year's survey shows the widening gap between dial-up users and broadband users in the amount of time spent online. Broadband users are clearly more engaged in the online world and are using its services more. As the way we communicate turns ever more to the Internet and the Web, dial-up users will find themselves increasingly hampered by a slow service unable to handle the growing data streams delivering information. On the other hand, when

dial-up users statewide were asked at what price they would be willing to switch to broadband, more than 40% said they were not interested in switching. Has dial-up become a matter of choice? Clearly, for a small fraction of the population it will always be, because it meets their needs. But for those who want to engage more in online activities, broadband is becoming a necessity to handle the growing flow of data associated with doing things online.

This last observation leads to another somewhat puzzling finding: the increase in computer ownership and Internet connectivity. After remaining virtually flat, or at least within the margin of error, for the first five surveys, computer and Internet percentages rose considerably from 2005 to 2007. Why this increase? Some possible answers are the decreasing price of computers and Internet service, or at least a price holding steady while features and speeds improve. Another possible answer, however, could be that the need and desire for access to the Internet and all the things that can be done there. Two years ago, this study speculated that unless something was done to get people to buy more computers, Internet and broadband adoption would simply plateau. Perhaps the allure of the Internet was the push needed and is now driving the demand for computers.

Finally, in 2001, the Digital Divide between rural and urban was a very real issue. This annual survey was started to measure the extent (or lack) of access to broadband for rural households. Today, in 2008, that Digital Divide is closing, more than half the households in rural Minnesota subscribe to a broadband service and the percentage of households that simply do not have access to broadband continues to shrink. While the basic issue of access is still a reality in some parts of the state and should continue to be monitored, more targeted issues should be the focus of future research, studying how best to take advantage of these technologies that are now reaching all parts of Minnesota.

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