Digital Excellence in Chicago

A Citywide View of Technology Use

Karen Mossberger, Ph.D., Public Administration, University of Illinois at Chicago
Caroline J. Tolbert, Ph.D., Political Science, University of Iowa

Commissioned by:
City of Chicago Department of Innovation and Technology

Supported by:
John D. and Catherine T. MacArthur Foundation
State of Illinois Department of Commerce and Economic Opportunity

July 2009

TABLE OF CONTENTS

TABLES

MAPS

EXECUTIVE SUMMARY

In May 2007, the Mayor's Advisory Council on Closing the Digital Divide defined a set of goals to achieve digital excellence—universal, meaningful participation in technology—throughout the City of Chicago and identified five drivers necessary to achieve digital excellence: effective network access, affordable hardware, suitable software, digital education, and evolving mind-sets. The advisory council announced that "Closing the digital divide must be seen as part of the larger opportunity for Chicago to transform institutions, the economy and communities. This is an inclusive vision, seeking to provide universal meaningful participation, expanded economic prosperity, strengthened communities and more effective government for all."[1] Building on a vibrant network of community organizations and public agencies that have been addressing technology disparities in the city, the advisory council called for a new focus on digital excellence that would be integral to the city's ability to compete economically in the twenty-first century. Therefore, the City of Chicago – in collaboration with numerous partners from the private sector, higher education and non-profit sectors – has since identified strategies to help Chicago residents and businesses achieve digital excellence and realize the vision of the advisory committee.[2]

In an effort to fully understand and determine the barriers to technology use for the underserved in Chicago, the City of Chicago, the John D. and Catherine T. MacArthur Foundation and the State of Illinois Department of Commerce and Economic Opportunity commissioned this digital excellence study to identify the levels of technology use across Chicago. The study was designed by researchers from the University of Illinois at Chicago and the University of Iowa, and is based on a random-sample telephone survey of 3453 Chicago residents aged 18 and older, conducted by the University of Iowa Hawkeye Poll in June and July 2008. The resulting data define the relevant gaps in technology use in Chicago and provide a baseline for evaluating progress in the future. The report will help the City and the broader community to strategically target digital excellence efforts and change conditions and awareness in the Chicago communities that either do not have access to technology, or do have access but have not achieved digital excellence.

Although studies of internet use or service availability have been conducted in other cities, this study is the first of its kind in several ways. It breaks new ground by showing how **neighborhoods** across the city differ in their use of the technology as well as barriers to technology use. Clearly, this is important for designing programs that meet the varied needs of communities across Chicago, and the results indicate the significance of neighborhood characteristics for understanding technology opportunities. The neighborhood estimates in this study are based on sophisticated multilevel models, but the results do not require an understanding of the statistical analysis behind them. The findings presented here are based on a telephone survey that has a large sample that is representative of the

[1] Mayor's Advisory Council on Closing the Digital Divide 2007, 3.
[2] City of Chicago. http://www.cityofchicago.org/digitalexcellence.

city population. Some cities have recently used mail surveys to track technology use.[3] These are poor instruments for reaching conclusions about the population of a city, because they have low response rates and those who take the time to fill out and return these surveys are likely to be those who are most interested in the topic, and not typical of city residents. Residents who are least likely to return mail surveys are individuals with limited literacy or English proficiency, who are also among those currently lagging behind in technology use. While there have been a few other cities with telephone surveys on technology use that provide reliable random samples, the analysis offered here is unique in its ability to identify which disparities are significant – that is, whether race, or education, or neighborhood poverty matter for internet use. This requires statistical analysis that has not been used in other municipal studies of technology use. Together with the neighborhood data, this information is critical for developing appropriate policies and targeted programs.

The following table shows some key indicators – the percentage of Chicago residents who meet criteria for digital excellence.

Indicators of Digital Excellence	**Chicago (citywide)**
Internet access	
% who use the internet in any place	75%
% who use the internet daily	60%
% who use the internet at home	69%
% with broadband access at home	61%
% who use a cell phone to connect to the internet	26%
% who use wireless internet in a public place	35%
Hardware / Software	
% who have used a Community Technology Center	16%
% who have used a library for internet access	33%
% with a home computer	77%
Skills / Education	
% who know how to use a search engine	70%
% who know how to use email	72%
% who know how to upload images or files	61%
% who know how to create a website	25%
% who use the Internet for work	48%

Continued on next page

[3] Scarborough Research. NYC Comparative Computer & Internet Penetration Data. Data were collected through a mail-based survey conducted between February 2006 and March 2007; results represent 211,468 nationwide respondents and 4,407 New York City respondents.

Awareness / Mindset	
% who have looked for job information online	50%
% who have looked for healthcare information online	64%
% who have read online news	67%
% who have used the City's website	49%
% who have taken an online class / training	31%
% who do not use the internet at home because they are not interested	16%

The findings summarized below include the results of statistical analysis of internet use and access in Chicago (describing less-connected as well as disconnected residents); use of public access sites such as libraries, community technology centers and wireless networks; barriers to access; internet use for economic opportunity, civic engagement, health care, and e-government; and support for public and private efforts to foster digital excellence.

Access and Use

Achieving digital excellence requires that residents be able to use the internet regularly and effectively, including a full, media-rich experience. We therefore need to understand who uses the internet in any place, who uses the internet at home, and who has high-speed broadband connections at home. Residents who are online daily are most likely to have home connections, and also to have broadband, which encourages frequent use, a wider range of activities online, and at least some basic level of skill. Broadband is needed for full connectivity to the web as well as frequent use.

Seventy-five percent of Chicago residents use the internet, at least occasionally. Six percent of the city's population, however, is online at times but does not use the internet at home, and another eight percent rely on slow dial-up connections. This means that nearly 40 percent of Chicago residents are either entirely offline or have limited access. To promote full and meaningful participation online, it is necessary to better understand who comprises both the disconnected and the less-connected.

Chicagoans who are statistically more likely to be offline *or* less-connected are older, Latino, African-American, low-income and less-educated. Residents of neighborhoods with a high percentage of African-Americans and Latinos are particularly disadvantaged in terms of internet use. There are some differences, however, in disparities for use anywhere versus home use and broadband.

Older and Latino residents are least likely to use the internet anywhere (although income, education, and race are significant predictors for being online in any place as well). The gaps based on race alone, for African-Americans, are relatively small for internet use anywhere, and African-Americans are no different from whites when we account for differences in the neighborhoods where they live. But, disparities between African-Americans and whites are larger for home access, indicating that many

low-income African-Americans are among the less-connected who lack home access, but go online elsewhere. In contrast, Latinos (and older residents) lag behind in use anywhere, home access, and broadband.

Income is the most important factor influencing home access, in contrast to internet use anywhere. Income also accounts for the largest differences between broadband and dial-up internet users, although these are more modest, and the larger barrier is acquiring home access of any kind. This suggests that greater affordability of internet services (as well as needed hardware and software) will help to close some gaps in home access and broadband use.

Public Access and Wireless Use

Most Chicago residents are aware of public places to use the internet, and most perceive them as fairly accessible. Thirty-three percent of Chicago residents have used the internet at a public library, and 16 percent say that they have used a community technology center. Half of those who use libraries have sought help in finding information online, and around 30-40 percent of library internet patrons have problems with or lack computers or internet connections at home.

Chicago residents who are most likely to use public access at libraries are younger and African-American. Low-income residents are statistically more likely to use the internet at libraries, but so are better-educated Chicago residents. Latinos are about 8 percent more likely than non-Hispanic whites to use technology at the library, controlling for other factors, but this compares to 14 percent for African-Americans. Home internet users are also more likely to use technology at libraries, indicating that many library patrons go there for help or convenience. Still, public libraries are reaching low-income and minority residents, among others.

Examining use of community technology centers (CTCs) in low-income neighborhoods, we find some similarities with libraries – younger and better-educated residents are among the most likely visitors. Parents are more likely to use a CTC, as are African-American residents. Respondents residing in the poorest neighborhoods are also most likely to use the internet at a community technology center.

Use of wireless networks in public places is fairly common – 35 percent of Chicago residents have used them to go online. Higher percentages of young people aged 18-29 use wireless hot spots, and this is also the age group with the highest percentage connecting to the internet through cell phones.

Barriers to Access

To devise better public and private policies for addressing digital disparities, we asked residents why they did not have the internet at home. The three most common choices selected as the main reason for not having internet access at home were lack of interest, cost, and difficulty of use. There were clear differences between demographic groups in the reasons for being offline or less-connected.

Those who are not interested are older; age accounts for the largest influence on interest. Others more likely to say they are not interested are higher-income residents who don't have the

internet, and less-educated residents. African-Americans are less likely than whites to say that they are not interested.

Income is the major factor explaining concerns about cost; residents who say they can't afford the internet are statistically more likely to be low-income. Latinos, and to a lesser extent, African-Americans are also among those more likely to cite cost as a barrier, controlling for other factors.

Chicago residents who perceive the internet as too difficult are older, less-educated and Latino. African-Americans are less likely than whites to say that the internet is difficult to use.

Given that African-Americans who do not have the internet at home are more likely to use it elsewhere, this indicates that skill and interest are not the problem for this group, but cost is an issue for low-income African-Americans. Latinos, in contrast, perceive both cost and skill as barriers, and were also more likely to cite some of the less common reasons for not being online as well. For Latinos, who lag further behind in internet use, there appear to be multiple obstacles.

Activities Online

Chicago residents who are online engage in a variety of activities that illustrate the potential of the internet for improving economic opportunity, civic engagement, health, and access to government services. About 48 percent of Chicago residents (63 percent of employed residents) have used the internet for their jobs. While internet use at work increases with education and income, it is not confined to highly-skilled jobs. Thirty three percent of employed Chicago residents with a high school education use the internet at work either daily or several times per week.

The most common activities online included in the survey are following the news (67 percent of Chicago residents) and seeking health information (64 percent). Nearly all of the activities we asked about were in fact quite common, once residents are online; for example, 91 percent of Chicago **internet users** read news online. This shows how thoroughly daily tasks have migrated to the internet, and how integral the technology is for access to information and services.

While younger, better-educated and higher-income residents are most likely to engage in any activity online, there are some demographic and neighborhood differences across activities. African-Americans are statistically more likely than whites to look for job information online. Users of the City of Chicago website are more diverse than e-government users in general; women and parents are among the most likely City of Chicago website users, and there are no differences by race and ethnicity. Residents of high-poverty neighborhoods are among those who are most likely to use public transit websites. Women and parents are among the most common users of health information online, and there are no differences between African-Americans and whites for health information use. Young people are among the residents who are most likely to follow the politics or news online or to access e-government, although they are traditionally least likely to be interested in politics or public affairs. The internet presents the possibility of countering current inequalities for the disadvantaged or less engaged. Once residents are online, the internet opens new possibilities for democratizing information and access to services.

Public Policy Support

Many activities are needed to address the various dimensions of digital excellence, but one policy initiative that has been discussed in Chicago and other cities is the provision of wireless internet service. Chicago residents expressed strong support for extending wireless access in the city. A total of 89 percent of survey respondents favored some type of wireless policy, and wireless access available throughout the city was the preferred option (chosen by 50 percent of respondents). There was also support for alternatives such as wireless access in schools and libraries only (26 percent) or in low-income neighborhoods only (13 percent). When asked whether they would be willing to pay a small tax or fee to provide wireless internet service, 60 percent of respondents answered that they would. Public opinion clearly favors wireless initiatives as one way of achieving widespread digital excellence.

Conclusion

The survey indicates that many gaps in internet use and access persist, but that there are opportunities for progress. Most residents of low-income communities are not simply uninterested in going online, suggesting that efforts to provide affordable access, training, and technical support should help to narrow these gaps. Chicago residents are already engaged in many activities online, for work, political participation, health care and government services. This survey is intended to provide valuable insights for Chicago residents, businesses, community organizations, educational institutions and policymakers who share the vision of promoting digital excellence throughout the city. As internet use expands in Chicago through technological advances, inclusive market actions and thoughtful public policy, more residents will enjoy the benefits of participating fully in society online.

PART I. INTRODUCTION: WHY DIGITAL EXCELLENCE?

"Transforming society and economy through digital excellence" is the ambitious goal that was set in May of 2007 by the Mayor's Advisory Council on Closing the Digital Divide.[4] The advisory council recognized that a networked city, with widespread information technology use, enjoys advantages for attracting high-wage jobs, growing the economy through innovation, enriching community life through information and civic engagement, and running government more effectively and efficiently. There is growing evidence of the benefits of information technology use for individuals as well as society. Internet use at work increases wages, even when we take into account differences in other factors, such as education and occupation.[5] This is true even for workers who have a high school education or less, and the wage increase for internet use at work is slightly greater for African-Americans and Latinos than for white non-Hispanic workers. Internet use also promotes higher levels of political knowledge, discussion and political interest, and many studies have linked the information and mobilization capacity of the internet with an increased likelihood of voting.[6] E-government users have improved interactions with government and enjoy more convenient access to services.[7] Those who are excluded from participation online suffer from unequal opportunities in both the economic and civic arenas, and these disparities in turn prevent communities from realizing their potential.

Inclusion in society online means more than simply having some way of accessing the internet on an occasional basis. Public policy often tracks the percentage of people who report ever going online, and this certainly has some value, as we show here. But, occasional use is not sufficient to achieve digital excellence, or to participate fully in the opportunities afforded by the internet. This requires regular and effective access and the skills to use the technology. National surveys have shown that home access is important for frequent use. Mobile devices are increasingly expanding the ways in which the internet can be accessed, but home internet connections remain the most frequent way to go online for most internet users. Broadband or high-speed connections are necessary to take full advantage of content online, especially the multi-media and interactive dimensions of the internet. Broadband is also associated with more frequent internet use and a wider range of uses, and a greater likelihood that users will develop necessary skills.[8] The skills required for effective internet use can be described in a variety of ways,[9] but can be thought of as technical competence and information literacy. Technical competence is the ability to use hardware and software. Information literacy online includes the ability to understand what information might be needed to solve a problem, to find it online, to evaluate its utility and validity, and to apply it. Obviously, this requires basic literacy (or reading comprehension) as well as some other educational competencies such as critical thinking. The internet is a reading-intensive medium, and this is particularly true for finding information about politics, government services, health care, and jobs.

---

[4] Mayor's Advisory Council on Closing the Digital Divide. 2007. The City that NetWorks: Transforming Society and Economy Through Digital Excellence.
[5] Mossberger, Tolbert and McNeal 2008, chapter 2.
[6] Bimber 2003; Krueger 2002; Tolbert and McNeal 2003; Mossberger, Tolbert and McNeal 2008.
[7] West 2004; Welch, Hinnant and Moon 2005; Tolbert and Mossberger 2006.
[8] Mossberger, Tolbert and McNeal 2008, chapter 6.
[9] See, for example the literacies identified by Mark Warschauer (2003) and Jan VanDijk (2005).

The Mayor's Advisory Council, which included a wide range of representatives from foundations, businesses, community-based organizations, universities and government, defined the goal of achieving digital excellence throughout the city. According to the 2007 report of the advisory council, the drivers of digital excellence are:

1. **Effective network access** that is high-speed, reliable, affordable and available everywhere.
2. **Affordable hardware** with capacity to connect to the internet and tap into the full range of its visual and other resources.
3. **Suitable software** that meets the needs of individuals, families, business, and communities.
4. **Digital education** that provides the training and technical support for users to become comfortable and proficient.
5. **Evolving mind-sets** that value learning, connecting and communicating through technology, and that recognize the business and other opportunities of expanding internet participation.

(Executive Summary, p. 2, *The City that NetWorks: Transforming Society and Economy Through Digital Excellence)*

This current report provides an initial view of internet use and attitudes about information technology in Chicago to assess areas of need for programs, policies and technological infrastructure. The report provides unique insight into where and why a "digital divide" exists in a large municipality and the data can be used to inform public and private sector decision-makers and community leaders. We discuss internet use in a variety of settings, from home access to public access, and trends toward the use of wireless devices. Beyond access, we examine skills in terms of the ability to use the internet frequently and to engage in a variety of activities online. We explore the reasons why some Chicago residents are not online, and what might motivate them to use the internet in the future.

This report is based on a random-sample telephone survey of City of Chicago residents, conducted in June and July 2008. The study was designed by researchers at the University of Illinois at Chicago and the University of Iowa, and the survey was conducted by the University of Iowa Hawkeye Poll. The survey yielded a sample of 3453 respondents from Chicago's 77 community areas. The survey was conducted in Spanish and English, and the cooperation rate was 27 percent, which is typical for telephone surveys. The sample of residents 18 years and older was fairly representative of Chicago's population. Of survey respondents, 45 percent were white non-Hispanic, 31 percent were African-American, 3 percent Asian-American, 19 percent Latino and 3 percent other or mixed race. The percentages reported in this study are weighted to correct for differences between the sample and the population.

PART II. INTERNET USE AND ACCESS

Internet use in the City of Chicago looks remarkably like the rest of the nation. Chicago as a whole is keeping pace with national averages, but as a diverse city, it also reflects the disparities in internet use that persist nationwide. By addressing these gaps, Chicago has the chance to create models for a 21st century city that are forwarding-looking both technologically and socially.

As of summer 2008, 75 percent of Chicagoans used the internet, in comparison with national figures of 73 percent during the same period.[10] Some caution should be exercised in comparing Chicago with national data, particularly in reaching conclusions based on differences of a few percentage points.[11] So, while there are some small differences between Chicago and the nation, the soundest conclusion is that they are quite similar.

75% of Chicago residents use the internet at least occasionally

Broadband connects users to the internet at higher speeds than dial-up modem, and is most commonly available through either a cable modem or digital subscriber line (DSL).[12] Beyond speed, however, broadband encourages frequency of use because it permits "always on" connections that don't occupy a phone line. In Chicago, 61 percent of the city's population has a broadband connection at home, in comparison with 55 percent of the U.S. population. This may reflect the infrastructure advantages of a major city over rural areas, although the differences may be partly due to sampling for either the national or Chicago survey.

61% have broadband; 60% go online daily

Although 75 percent of city residents have some experience with the internet, only 60 percent use the internet on a daily basis. Frequent use is important for digital excellence, because those who are online frequently are more likely to have both regular access and at least some basic internet knowledge and skills.

Frequent use occurs at home and with broadband; 4 in 10 face barriers to full access in Chicago

Overall, 25 percent of Chicago residents are completely offline, another 6 percent use the internet at times but lack home access, and 8 percent have more limited and slow dial-up connections rather than high-speed broadband. Approximately 60 percent of Chicago residents have adequate access, but nearly 40 percent have somewhat limited or no internet access. Thus, 4 in 10 face technology barriers of varying degrees.

Both those who lack home access and broadband are less frequent internet users, and both the disconnected and less-connected tend to be economically disadvantaged or older residents. The largest gaps are between Spanish-speaking and English-speaking residents, as only 39 percent of those who responded to the survey in Spanish use the internet, compared to 79 percent of those who answered in

[10] May 2008 tracking survey, Pew Internet and American Life Project, pewinternet.org

[11] Random-sample surveys have a margin of error of plus or minus a few percentage points. What this means is that surveys may reflect the peculiarities of the people who happened to respond, to some extent. The Chicago survey reported here has a margin of error of plus or minus 1.7 percentage points.

[12] The Federal Communications Commission defines broadband as any connection with transmission speed of at least two hundred kilobits per second in one direction.

English, a 40 percent difference based on language use. Latinos as a whole stand out as among the least-connected residents.

Only 39% of respondents who took the survey in Spanish use the internet

The next section on internet access offers a more complete picture of disparities in internet use in any place, home access, and broadband connections. These three elements are needed to understand the needs of the less-connected as well as the disconnected in Chicago. First, however, we explain how to compare and use different types of information discussed in the report.

Reading the Results

In many cases in this report we use simple percentages, such as those in the section above. We examine the key points in more depth using statistical analysis, but present the findings in ways that do not require the reader to have any statistical background. These more analytical findings are reported in "What Matters" boxes that are set apart. Simple percentages can tell us what proportion of the population does something - for example, what percentage of Latinos uses the internet. But, they cannot explain whether ethnicity itself has any effect on internet use, or whether it is really education and income that explain differences between Latinos and non-Hispanic respondents. To disentangle the effects of overlapping influences, we use a method called multivariate regression (or logistic regression) to isolate the factors that are statistically significant predictors of internet use. What this allows us to say, for example, is whether Latino ethnicity is a significant predictor of technology use when we control for the effects of income, education and age. The multivariate regression models are reported in the appendix. When numbers are presented outside of the designated **"What Matters"** boxes they are based on simple percentages.

A brief word is necessary on how to use the information in the "What Matters" tables. Within these highlighted tables, we include probabilities (based on multivariate regression analysis) that represent the difference that education makes, for example, taking other influences into account. ***These can be read as percentages – what percentage difference a high school education makes in comparison with a college degree when we control for other factors. But, the key difference between our probabilities and simple percentages is that the probabilities show the estimated influence of education alone, if we control for other influences.***

An example will help to show the difference this makes. If we look at the **simple** percentages for education, for example, we see that 58 percent of high school graduates use the internet and 88 percent of college graduates are internet users (a 30 percent difference). When we use predicted probabilities, we see that college graduates are 15 percent more likely than high school graduates to be internet users (not 30 percent), taking into account the effects of income, age, gender, race, ethnicity, and so on. Both types of information are useful, but they tell us different things. With simple percentages, we know how common it is for college graduates to be online in comparison with high school graduates. With predicted probabilities, we know that education is responsible for only some of

this difference (15 percent), because, for example, college graduates also have higher incomes, which also contribute to the 30 percentage-point gap between these two groups.

One of the strengths of using predicted probabilities is the ability to compare the impact of different factors such as education, age, or income. We look at the percentage difference moving one or two "standard deviations" from the mean. This defines statistically (based on the distribution of responses in the survey) what "low" or "high" is for each explanatory factor, and it simply allows us to compare the influence of low education versus low income, for example.

The discussion after the "What Matters" tables includes the results of **multilevel models** (which can be found in Appendix B)**.** These are analyses that include the influence of characteristics of the surrounding neighborhood (the census tract) in addition to the factors that appear in the "What Matters" tables. We merged our individual-level survey data on technology with 2000 data from the U.S. Census Bureau information for Chicago's 700 census tracts.[13] Multilevel regression models were estimated taking into account individual-level characteristics (a respondent's age, race, ethnicity, income, education, gender and parental status), as well as neighborhood or census tract level characteristics (percent Latino population, percent black population, percent Asian population, percent residing in poverty and percent of the population with a high school degree or higher). These multilevel models (including neighborhood characteristics) were used to estimate internet use for each of the 77 community areas and each of the census tracts in Chicago. Community area maps included in this report are based on these models, as well as the discussion of the impact of community characteristics in the text.[14]

The results of the regression analysis are highlighted in the "What Matters" tables, and discussed in the text immediately afterwards. We consider this the most reliable way to understand disparities in technology use in the City of Chicago. The predicted probabilities in the "What Matters" tables provide the most accurate picture, isolating the effects of overlapping influences. This offers better guidance for policy, to know the true impact of education versus income, for example, on the disparities that are evident.

To promote digital excellence, policy-makers and community leaders need to target both those who never use the internet and those who have limited experience online. Regular and effective use

[13] A new variable was created that was the percentage of the community area's population that resides in the census tract (total population/community area total population). For each explanatory/predictor variable (let's say percent Latino), the following formula was applied: (percent Latino/100)* [multiplied by] the weighted population variable. These census tract values were then collapsed and summed to get the total community area value. The new community area geographic characteristics were merged back into the individual level survey data.

[14] These multilevel models provide accurate point estimates of the percent of Chicago's population with home internet access at the geographic level. The census tract level information was also aggregated to the community area to provide estimates of technology use and access for Chicago's 77 community areas. For each dependent variable, two multilevel models were estimated: one combining the survey data with neighborhood (census tract) information, and one combining the survey data with community area geographic information. These point estimates can be read as percentages, but they take into account multiple individual level and geographic characteristics listed above. We consider these models fully specified.

requires home access and high-speed connections, as this section demonstrates. We compare internet use, home access, and broadband in the following analysis, to show where the greatest gaps exist.

What Matters Table A: Who Uses the Internet in Any Place and Who Has Home Access?

The factors listed below have a statistically significant influence on internet use. A plus sign (+) indicates increased probability of internet use, and a minus sign (-) indicates decreased chances of internet use.

Internet Use in Any Place	Internet Use at Home
Age (-)	**Income (+)**
Latino (-)	**Age (-)**
Income (+)	**Education (+)**
Education (+)	**Latino (-)**
African-American (-)	**African-American (-)**
	Parent (+)

Reading Predicted Probabilities: A female, white non-Hispanic Chicago resident with no children and average age, income, and education has a 90 percent probability of using the internet in any place and an 81 percent chance of using the internet at home. Results shown below indicate, for example, that a respondent who is Latino, but otherwise the same, has only a 72 percent chance of using the internet anywhere. Latino ethnicity alone makes an 18 percent difference (holding other factors constant). Read the numbers not in parentheses as percentages.

	Use Internet in Any Place	Use Internet at Home
White non-Hispanic (Baseline)	.90 (.01)	.81 (.02)
Latino	.72 (.03)	.71 (.03)
Difference Latino vs. White	-.18	-.10
Black	.84 (.02)	.71 (.02)
Difference Black vs. White	-.06	-.10
Annual Income		
Very Low ($0, -2SD)	.61 (.04)	.40 (.04)
Low ($10,000- $20,000, -1SD)	.79 (.02)	.62 (.03)
Mean/Average ($40,000 - $50,000)	.90 (.01)	.81 (.02)
High ($75-$100,000, +1SD)	.96 (.01)	.91 (.01)
Very High (more than $150,000, +2SD)	.98 (.00)	.95 (.01)
Difference Low to High	+.17	+.29
Education Level		
Less than HS	.70 (.03)	.59 (.03)
High School Graduate	.79 (.02)	.68 (.03)
Some College	.91 (.01)	.81 (.01)
College Graduate	.94 (.01)	.86 (.01)
Graduate Degree	.96 (.01)	.90 (.01)
Difference HS to College	+.15	+.18
Age of respondent		
Very young (18 yrs, -2 SD)	.99 (.00)	.95 (.01)
Young (31 yrs, -1 SD)	.97 (.00)	.91 (.01)
Mean/Average (49 yrs)	.90 (.01)	.81 (.02)
Old (, 67 yrs, +1 SD)	.70 (.02)	.63 (.02)
Very old (85 yrs, +2 SD)	.37 (.03)	.40 (.03)
Difference Young to Old (27-67 yrs)	+.27	+.28

Note: Predicted probabilities calculated with Clarify Software from the logistic regression models reported in Appendix Tables 1 and 2. Probabilities estimated with control variables set at mean or modal values. Standard errors of the probability estimate in parentheses.

Internet Use in Any Place

"What Matters" Table A, column 1, shows that Chicago reflects the same gaps in internet use that are present nationally, but that racial disparities are considerably smaller than those based on Latino ethnicity. Respondents were asked "Do you use the Internet in any place?" and could respond "yes" or "no." Those who are less likely to use the internet in any place are older, Latino, African-American, lower-income, and less-educated residents. As in national surveys since 2000, women are no less likely to be online than men.[15]

- The largest gaps are based on age, consistent with national surveys. With all other factors held constant, a young person (31 years of age, which is minus one standard deviation from the mean) has a 97 percent probability of internet use in general, compared to a 70 percent probability for an older person (67 years of age, which is plus one standard deviation from the mean). This is a 26 percent difference based on age alone.

- The next largest gap is based on ethnicity. Holding constant all other factors, Latinos are 18 percent less likely to use the internet than non-Hispanic whites. This effect does not reflect lower incomes of Latinos compared to whites, but is based on ethnicity alone and Spanish language barriers. Latinos who chose to conduct the survey interview in Spanish rather than English have particularly low rates of internet use.[16]

- Income ranks next in influencing use. The poor (with annual incomes of between $10,000 and $20,000 per year, which are minus one standard deviation from the mean) are 17 percent less likely to use the internet in general than those with higher incomes ($75,000 - $100,000 per year, which is plus one standard deviation from the mean).

- Education gaps are nearly as important as income. Holding all other factors constant, a high school graduate is 15 percent less likely to use the internet than a college graduate.

- African-Americans are 6 percent less likely to use the internet than whites. This gap is smaller than has been reported by earlier national surveys, showing either improvement over the past few years or greater progress in narrowing racial gaps in Chicago in particular.[17] While many African-Americans are still offline, race accounts for a smaller part of the explanation for their lack of internet use than disparities in income and education.

Those least likely to be online are older and Latino residents

[15] Katz and Rice 2002; Mossberger, Tolbert and Stansbury 2003.

[16] National studies of Latinos show that language is a significant factor for internet use among Latinos, although education is also significant. See Fox and Livingston 2007.

[17] The 2003 Current Population Survey conducted by the U.S. Bureau of the Census shows larger gaps based on race, for example, as discussed in Mossberger, Tolbert and McNeal (2008), chapter 5.

Home Internet Use

Respondents were also asked "Do you use the internet at home?"[18] Column 2 of What Matters Table A shows the probability of having the internet at home. The results parallel the findings for internet use in general, but with some important differences.

Income is most important for home use, and the effects of income are substantial

These simulations demonstrate that income causes the largest gaps in home internet access, followed by age, while age and Latino ethnicity cause the largest gaps in use of the internet in any place.

- The largest gap in home internet access is based on a respondent's family income, not age. The poor (one standard deviation below the mean) are 29 percent less likely to have access than higher-income residents (plus one standard deviation above the mean), all else equal. Poor Chicago respondents have only a 62 percent probability of having home access compared to a 91 percent probability of home access for higher-income residents. Low-income respondents are 29 percent less likely to have home access, but only 17 percent less likely to be internet users anywhere. This makes sense, given the investment in hardware and software and the monthly internet bills associated with home internet use.

- Disparities in home access based on age are significant. The young are 28 percent more likely to have home internet access than older respondents; a 31 year old (one standard deviation below the mean) has a 91 percent probability of having home access compared to the an older individual (67 years, one standard deviation above the mean), who has only a 63 percent probability of having the internet at home.

- Educational attainment is the next largest predictor of gaps in internet use at home. A college graduate is 18 percent more likely to have the internet at home than a resident with only a high school diploma, all else equal.

- Both African-Americans and Latinos are 10 percent less likely to have home Internet access than white non-Hispanics. Gaps for home access are wider for African-Americans than for internet use anywhere, suggesting blacks are more likely to take advantage of internet access outside the home.

- Parents are also more likely to have the internet at home, although they are not more likely to be internet users.

[18] Responses were coded 1 for yes and 0 for no.

Neighborhood Variation for Internet Use Anywhere and at Home

To understand how neighborhoods vary, multilevel models (Appendix B) can be used to include the factors listed above, as well as census data on neighborhood characteristics: poverty; percentage of high school graduates; and percentage of African-Americans, Latinos and Asian-Americans. Neighborhoods have a significant influence on both internet use anywhere and home access:

Internet Use in Any Place

- Residents of neighborhoods with high percentages of African-Americans or Latinos are less likely to use the internet anywhere.

- In fact, the differences between African-Americans and whites in use anywhere can be explained by neighborhood factors – by residence in high-poverty minority neighborhoods. This is consistent with national research.[19]

Home Internet Use

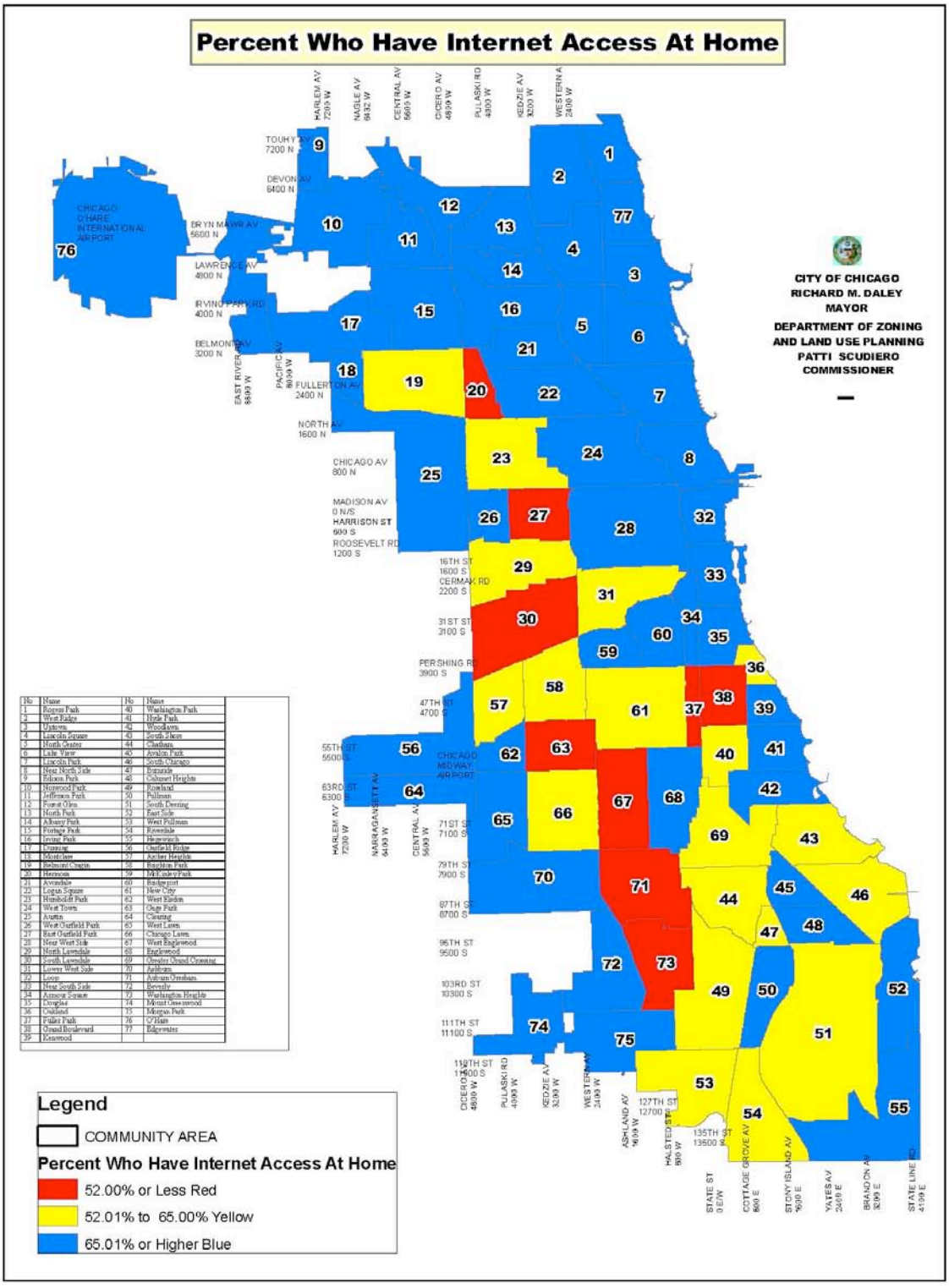
- Residents living in neighborhoods with a higher percentage of Latinos are also less likely to have home access.

- Residents of communities with a high proportion of Asian-Americans have higher rates of home use.

There is considerable variation across the community areas for both internet use anywhere and also internet use at home. The multilevel models were used to estimate internet use anywhere and home access for the 77 Community Areas in Chicago. These areas are traditionally used for many planning purposes.

The map on the next page highlights the variation in home internet use revealed by the models. Red areas have the lowest rates of home internet use in the city, and blue areas have the highest rates. Community areas colored in blue are estimated to have at least 65 percent of residents who have internet access at home. This is a little under the city-wide average for home access of 69 percent. Areas in blue therefore approach or exceed the city average. Areas with lower internet use (red or yellow) are primarily low-income and African-American or Latino neighborhoods. Home access is an important step toward digital excellence because it encourages frequent internet use, and many of Chicago's south and west side community areas are disadvantaged in this respect.

[19] Mossberger, Tolbert and Gilbert 2006



No	Name	No	Name
1	Rogers Park	40	Washington Park
2	West Ridge	41	Hyde Park
3	Uptown	42	Woodlawn
4	Lincoln Square	43	South Shore
5	North Center	44	Chatham
6	Lake View	45	Avalon Park
7	Lincoln Park	46	South Chicago
8	Near North Side	47	Burnside
9	Edison Park	48	Calumet Heights
10	Norwood Park	49	Roseland
11	Jefferson Park	50	Pullman
12	Forest Glen	51	South Deering
13	North Park	52	East Side
14	Albany Park	53	West Pullman
15	Portage Park	54	Riverdale
16	Irving Park	55	Hegewisch
17	Dunning	56	Garfield Ridge
18	Montclare	57	Archer Heights
19	Belmont Cragin	58	Brighton Park
20	Hermosa	59	McKinley Park
21	Avondale	60	Bridgeport
22	Logan Square	61	New City
23	Humboldt Park	62	West Elsdon
24	West Town	63	Gage Park
25	Austin	64	Clearing
26	West Garfield Park	65	West Lawn
27	East Garfield Park	66	Chicago Lawn
28	Near West Side	67	West Englewood
29	North Lawndale	68	Englewood
30	South Lawndale	69	Greater Grand Crossing
31	Lower West Side	70	Ashburn
32	Loop	71	Auburn Gresham
33	Near South Side	72	Beverly
34	Armour Square	73	Washington Heights
35	Douglas	74	Mount Greenwood
36	Oakland	75	Morgan Park
37	Fuller Park	76	O'Hare
38	Grand Boulevard	77	Edgewater
39	Kenwood		

Broadband Access

Broadband use is important for a number of reasons. Today, many applications require broadband speeds for full connectivity. Downloading graphics and documents, submitting online forms, making commercial transactions and payments, accessing many websites, or viewing videos online can be difficult with dial-up access. The slower speeds are often frustrating, discouraging frequent internet use. National studies have shown that those who use broadband are more likely to be frequent users, to engage in a larger variety of activities online, and to have higher levels of internet skill.[20] Broadband is clearly the standard, as most Chicago residents (61 percent) have high-speed connections at home.

The factors that influence broadband use are similar to those that affect internet use more generally, except that differences between broadband and dial-up users are less pronounced than between those who do not have home access at all and those who do. Home access is the larger hurdle, but broadband costs further restrict full access for some.

The gaps based on income are the largest, although older residents, less-educated residents, and Latinos are among the least likely to have high-speed internet rather than dial-up at home. **(See models on the next page.)**

- Low-income residents are 12 percent less likely to have high-speed connections rather than dial-up, but are 29 percent less likely to have home internet access of any kind (see What Matters Table A). Given that comparisons are between different types of home internet users, disparities are more modest. But income is the most important factor explaining differences between dial-up and broadband users.

- Age ranks second in its influence on broadband use. An older respondent (age 67) is 10 percent less likely than a young Chicago resident (age 31) to have broadband rather than dial-up at home.

- Latinos are 6 percent less likely than non-Hispanic whites to have broadband at home, controlling for factors other than ethnicity.

- Education is significant; college graduates are 5 percent more likely to have high-speed connections than high school graduates.

- One notable difference comparing broadband with internet use in general is that African-Americans are just as likely to have broadband as non-Hispanic whites, controlling for differences in income and education. Nationally, there was a dramatic increase in broadband adoptions by African-Americans in 2006, as high-speed subscription rates fell slightly in price and as less expensive DSL became more widely available.[21] In contrast, broadband use has not grown substantially among the poor, even with price declines.[22]

Income matters most for broadband access

WHAT MATTERS TABLE B. Who Has a Broadband Connection Compared to Dial-up?

[20] Horrigan 2005; Mossberger, Tolbert and McNeal 2008, chapter 6.
[21] Horrigan 2006.
[22] Horrigan 2008.

The factors listed below are the statistically significant differences between internet users with broadband and dial-up connections at home. A plus sign (+) indicates increased probability of broadband use, and a minus sign (-) indicates decreased chances of broadband use.

Broadband Use vs. Dial-Up

Income (+)
Age (-)
Education (+)
Latino (-)
Asian-American (+)

Reading Predicted Probabilities: A female, white non-Hispanic Chicago internet user with no children and average age, income, and education has a 92 percent probability of using broadband. Results shown below indicate, for example, that an internet user who is Latino, but otherwise the same, has only an 87 percent chance of using broadband. Latino ethnicity alone makes a 5 percent difference (holding other factors constant). Read the numbers not in parentheses as percentages.

	Broadband Connection versus Dial-up Access
Baseline [a]: White non-Hispanic	.92 (.01)
Latino	.87 (.02)
Difference Latino vs. White	-.05
Black	.92 (.01)
Difference Black vs.White	0
Income	
Very Low ($0, -2SD)	.74 (.05)
Low ($10,000- $20,000, -1SD)	.83 (.02)
Mean/Average ($40,000 - $50,000)	.92 (.01)
High ($75-$100,000, +1SD)	.95 (.01)
Very High (more than $150,000, +2SD)	.96 (.01)
Difference Low to High	+.12
Education Level	
Less than HS	.84 (.03)
High School Graduate	.87 (.02)
Some College	.91 (.01)
College Graduate	.93 (.01)
Graduate Degree	.94 (.01)
Difference HS to College	+.06
Age of respondent	
Very young (18 yrs, -2 SD)	.96 (.01)
Young (31 yrs, -1 SD)	.95 (.01)
Mean/Average (49 yrs)	.92 (.01)
Old (, 67 yrs, +1 SD)	.85 (.02)
Very old (85 yrs, +2 SD)	.75 (.03)
Difference Young to Old (27-67 yrs)	-.10

Note: Predicted probabilities calculated with Clarify Software from the logistic regression models reported in Appendix Table 3. Probabilities estimated with control variables set at mean or modal values. Standard errors of the probability estimate in parentheses.

Neighborhood Variation for Home Broadband

Multilevel models that introduce neighborhood characteristics are consistent with the above results (see Appendix B), except that:

- Broadband use is significantly more likely for residents of neighborhoods with higher educational attainment.

The models estimating broadband use in each of the community areas are not mapped here, but we can see the range across Chicago by examining the community areas with the highest and lowest rates of broadband penetration. Lincoln Park (Community Area 7) ranks at the top for broadband use, with 90 percent of the population estimated to be high-speed internet users. Lincoln Park is a community area with high income and educational attainment. At the other end of the spectrum is South Lawndale (Community Area 30), where only 25 percent of the population has broadband according to the multilevel estimates.

Summing Up What Matters for Use and Access

There are some common influences on internet use, home access, and broadband access, with age, income, education, race, and ethnicity appearing as significant factors to varying degrees. Latino and older residents are least likely to use the internet anywhere, and gaps based on education and income rank next. African-Americans are significantly less likely than whites to use the internet, but race accounts for the smallest disparity in internet use. In fact, when we take neighborhood factors into account, African-Americans are no less likely to be online than whites (but residents who live in communities with high populations of African-Americans or Latinos are disadvantaged in internet use). This suggests that community environment has some independent effect, beyond individual characteristics.

For home internet use, all of the individual-level factors are significant, but the effects of income are magnified – accounting for a 29 percent difference in home access in comparison with a 17 percent difference for use. African-Americans experience wider gaps for home access than for internet use, indicating that many rely on use outside the home. Living in a neighborhood with a high percentage of Latinos also decreases the likelihood of home internet use. Income is most important for explaining the difference between dial-up and broadband users, although older, less-educated and Latino residents are also significantly less likely to have broadband rather than dial-up.

Describing the Less-Connected

Policy attention is often focused only on internet use, but the quality of access is also important for digital excellence. Those who are not online at home use the internet less frequently; **83 percent of Chicago residents with home access are online daily in contrast with 7 percent of those who do not have home access.** Similarly, **88 percent of those who have broadband at home are online every day, compared to 54 percent of those who have dial-up internet access.**

83% of Chicago residents with home access are online daily, but only 7% of those without home access are

Taking a closer look at the 6 percent of city residents (10 percent of internet users) who use the internet but do not have home access, we can see some revealing patterns in the simple percentages that round out the picture we get from the probabilities. These individuals are among the less-connected internet users in the city, for they rely solely on work, school, public access, or the homes of

friends and relatives. As the numbers show, they are low-income residents. The simple percentages in Table 1 show the proportions of internet users in different income groups who do not have home access.

TABLE 1. INTERNET USE WITH NO HOME ACCESS BY 2007 TOTAL FAMILY INCOME

	% of internet users without home access
Less than $5,000	28%
5 to under $10,000	26%
10 to under $20,000	17%
20 to under $30,000	10%
30 to under $40,000	9%
40 to under $50,000	5%
50 to under $75,000	5%
75 to under $100,000	3%
Over $100,000	2%
Total for internet users	**10%**

Among those who do not have internet access at home, there are some differences based on race and ethnicity. A higher percentage of African-Americans and Asian-Americans who do not have the internet at home go online anyway. Only 22 percent of whites without home access are internet users, whereas 27 percent of African-Americans without home access are, and 29 percent of Asian-Americans without home access go online elsewhere. In contrast, only 16 percent of Latinos who do not have home access are internet users.[23] The findings for African-Americans are consistent with a study in northeast Ohio that discovered that poor African-American neighborhoods had higher proportions of internet users who lacked home access than poor white communities. This demonstrated effort to go online despite a lack of convenient access, but it also means that poor African-Americans tend to be less-connected internet users.[24] These results also suggest that affordability is the issue for low-income African-Americans rather than a lack of awareness of the benefits of being online. In Chicago, it is clear that Asian-Americans are also more likely to go online without home access and that Latinos are least likely to be internet users away from home.

Residents who have internet access at home have real advantages in ease of use, and greater prospects for developing the skill needed for internet use on the job. High-speed connections facilitate frequent internet use and the migration of tasks online, so that broadband users engage in a greater range of activities online and gain greater familiarity with the internet. Convenient, quality access at home allows residents to follow politics or neighborhood events online, help children with homework assignments, learn more about health issues, search for jobs, take an online class, or start a small business. Many of these activities are difficult to sustain with only intermittent access.

[23] These are simple percentages rather than probabilities based on regression analysis.
[24] Mossberger, Kaplan and Gilbert 2008

Still, public access in libraries and community technology centers continues to be an important resource for those who would otherwise not be online at all. In addition, public access sites can provide training or technical support to encourage internet use and develop digital skills. The next section examines internet use in public places, particularly libraries and community technology centers, as well as public wireless access.

PART III. PUBLIC AND WIRELESS ACCESS

In addition to business-sponsored hotspots (i.e.cafes and restaurants), the City of Chicago, its sister agencies, and an array of nonprofit organizations offer public internet access in places across the city. *Wireless Internet Zones,* free Wi-Fi hotspots provided by the City as a service to residents and visitors, are available at public places such as Millennium Park, the Chicago Cultural Center, and Richard J. Daley Plaza. Free Wi-Fi and computer and internet access are available at all 79 Chicago Public Library branches. Librarians and CyberNavigators provide valuable technology assistance and training to residents. The City's Senior Centers, Youth Career Development Centers, and Workforce Development Centers provide computer and internet access and technology training; and, the Department of Business Affairs offers free monthly technology training through its business education workshops. The Chicago Housing Authority provides residents with computer and internet access. Some Chicago Public Schools provide parents with computer and internet access and training.

Nonprofit organizations also offer technology access, training and support at community technology centers (CTCs) located primarily within low-income neighborhoods. There is no single listing of such centers, but CTCNet Chicago has approximately 40 member organizations.[25] The State of Illinois provided support for approximately 100 community technology centers in Chicago through the Digital Divide Initiative grant program during 2008. This program, administered by the Illinois Department of Commerce and Economic Opportunity, supports training in basic computer skills, vocational skills related to technology occupations, literacy skills, computer applications for small businesses, and assistive technology for individuals with disabilities.

Given the efforts of CTCs and libraries in Chicago, we asked residents whether it was easy or difficult to get to "places in your community with public access to the internet, like a library or community technology center." Most respondents believe that it is relatively easy to reach public access sites, with 76 percent saying that it is either very easy or somewhat easy to get public internet access within their communities. Fourteen percent felt that it was either somewhat or very difficult to use public access, and 10 percent did not know. Chicago residents seem to feel positively about the availability of public access in their communities. How many have used public access sites, and what are the characteristics of public access users? We discuss libraries in more detail next, and then present findings on community technology centers and wireless access.

Internet Use at Libraries

[25] See http://www.connectchicago.net/ChicagoInitiatives.aspx

Use of public access technology at libraries is most common, as 33 percent of the city's residents (44 percent of Chicago internet users) have gone online at a Chicago Public Library branch. Because libraries have functions other than technology use, internet users there may simply check email or other information while visiting the library for books or other media. To establish what proportion of library internet users depended upon public access, we asked about reasons for using the internet at the library. The results are displayed in Table 2 below.

One-third of Chicago residents use the internet at a public library

TABLE 2. REASONS FOR USING THE INTERNET AT THE CHICAGO PUBLIC LIBRARY

Percentages for library internet users only; multiple responses possible

Convenience	70%
Need help to find information	46%
Computer at home not working	39%
No computer at home, computer slow	33%
No internet at home	29%
To take a class	25%
To take my children for homework	25%
Need help to use computer	17%

Libraries clearly serve those who have limited access or who need help, but they have a broader audience of casual users as well. Convenience is the most important reason for internet use at the library (at 70 percent), indicating that not all library patrons lack home internet access. Still, between 30 and 40 percent cite problems with computers or connectivity at home as a reason to seek out the library. Obtaining help in finding information is the motivation for nearly half of those who use the internet at public libraries, although the need for help with computer hardware is less prevalent (at 17 percent). Twenty-five percent of library patrons use the library for formal instruction through computer classes or for children's homework.

Regression analysis allows us to better understand the characteristics of technology users at libraries, introducing factors such as parental status, awareness of public access in the neighborhood, ease of access to a public internet facility in the neighborhood, and whether or not the respondent uses the internet at home. The results are displayed in What Matters Table C below.

WHAT MATTERS TABLE C. Who Uses the Internet at Public Libraries?

The factors below are statistically significant influences on technology use at public libraries. A plus sign (+) indicates increased probability of library internet use, and a minus sign (-) indicates decreased chances of library internet use.

Library Internet Use

Age (-)	**Awareness of Other Public Access (+)**
Home Internet Use (+)	**Education (+)**
African-American (+)	**Perceived Ease of Use (+)**
Income (-)	**Latino (+)**

Reading Predicted Probabilities: A female, white non-Hispanic Chicago resident with no children, internet access at home, who is aware of public access in the neighborhood and perceives very easy access to the public internet facility, and who has average age, income, and education has a 39 percent probability of using the internet at the library. Results shown below indicate, for example, that a resident who is Latino, but otherwise the same, has a 47 percent chance of using the internet at the library. Latino ethnicity alone makes an 8 percent difference (holding other factors constant). Read numbers not in parentheses as percentages.

	Use Internet at the Library
White non-Hispanic (Baseline)	.39 (.02)
Latino	.47 (.03)
Difference Latino vs. White	+.08
Black	.53 (.03)
Difference Black vs. White	+.14
Annual Income	
Very Low ($0, -2SD)	.52 (.04)
Low ($10,000- $20,000, -1SD)	.46 (.03)
Mean/Average ($40,000 - $50,000)	.39 (.02)
High ($75-$100,000, +1SD)	.33 (.02)
Very High (more than $150,000, +2SD)	.29 (.03)
Difference Low to High	-.13
Education Level	
Less than HS	.28 (.03)
High School Graduate	.32 (.03)
Some College	.40 (.02)
College Graduate	.44 (.02)
Graduate Degree	.48 (.03)
Difference HS to College	+.12
Age of respondent	
Very young (18 yrs, -2 SD)	.66 (.03)
Young (31 yrs, -1 SD)	.55 (.03)
Mean/Average (49 yrs)	.39 (.02)
Old (, 67 yrs, +1 SD)	.25 (.02)
Very old (85 yrs, +2 SD)	.14 (.02)
Difference Young to Old (27-67 yrs)	-.30
Do not use internet at home	.17 (.02)
Use internet at home	.39 (.02)
Difference No Use at Home to Use	+.22

CONTINUED ON NEXT PAGE

WHAT MATTERS TABLE C (CONTINUED) Who Uses the Internet at Public Libraries?

	Use Internet at the Library
Not aware of public internet facility	.26 (.03)
Aware of public internet facility	.39 (.02)
Difference Not Aware to Aware	+.13
Very difficult to access public internet facility	.27 (.03)
Very easy to access public internet facility	.39 (.02)
Difference Very Difficult to Very Easy	+.12

Note: Predicted probabilities calculated with Clarify Software from the logistic regression models reported in Appendix Tables 4. Probabilities estimated with control variables set at mean or modal values. Standard errors of the probability estimate in parentheses.

Younger residents and African-Americans are among the most likely to use public access at libraries

The results reinforce conclusions that libraries serve residents who seek them out based on both need and convenience. Younger and better-educated residents are both more likely to use the internet at the library (as well as to use the internet in general). At the same time, African-Americans, Latinos, and lower-income residents are also significantly more likely to go online at the library. There are substantial gaps between African-Americans and Latinos in library use, however, again indicating that Latino residents are among the most disadvantaged in terms of internet use. Particularly high rates of library internet use among African-Americans support findings that many go online in some setting despite lower rates of home access.

- Age is the most important factor affecting technology use at Chicago public libraries. Younger residents (age 31) are 30 percent more likely to use the internet at a public library than older residents (age 67), even when we control for internet use. Younger Chicago residents are more engaged in technology in general, and are more inclined to use the internet at public libraries.

- Home internet use is the next most significant influence on technology use at the library. Although it is clear that some patrons lack home internet connections, residents who use the internet at home are 22 percent more likely to go online at the library. This supports the findings on convenience, but also indicates that libraries provide assistance for those who have the internet at home – including the 46 percent of library users who need help finding information or the 25 percent who take technology classes.

- African-Americans in Chicago are 14 percent more likely than white residents to use the internet at a public library, controlling for other factors. National surveys have indicated that African-Americans have more positive attitudes toward use of public access,[26] but this study shows substantial differences in actual use (not just attitudes). Given that a higher percentage of

[26] Mossberger, Tolbert and Stansbury 2003, chapter 3.

internet users without home access are African-American, public libraries are filling part of the need for access among these internet users.

- Income is nearly as important as race, for low-income residents are 13 percent more likely than higher-income respondents to use the internet at a public library. Again, this indicates that libraries are reaching needy populations in the city.

- But, education has the opposite effect. Internet use at libraries increases with education, and college-educated residents are 12 percent more likely than high school graduates to use library technology facilities.

- Awareness of community technology centers (CTCs) in their neighborhood and perceived ease of use for public access account for 12 and 13 percent increases in technology use at libraries, holding other factors constant. Library internet users are more likely to be aware of other public access in the community, and to also perceive public access as convenient to use.

- While Latinos also use technology at public libraries more than non-Hispanic whites, they are only about half as likely as African-Americans to be library internet users. Latinos are 8 percent more likely than non-Hispanic whites to use the internet at the library.

Neighborhood Variation in Library Internet Use

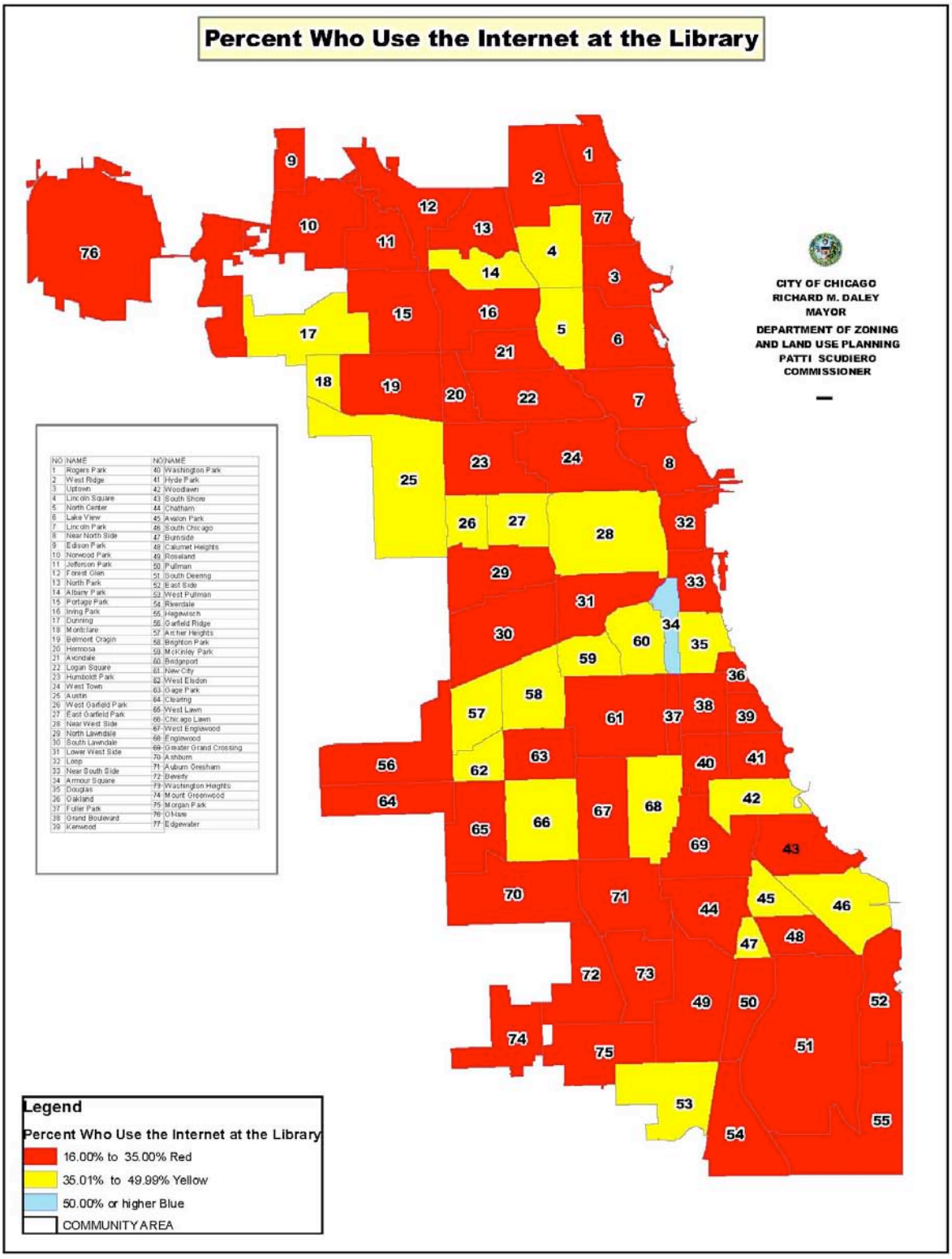
The neighborhood results provide further support for the dual nature of library internet use: convenience for residents who are frequent library patrons or frequent internet users, and assistance for individuals with limited access or skills. There are somewhat opposing patterns for neighborhoods:

- Residents of neighborhoods with higher percentages of African-American and Latino residents are less likely to use public access at the library than residents in neighborhoods with higher percentages of non-Hispanic whites.

- Residents of neighborhoods with high poverty rates are less likely to use the internet at the library.

- Yet, Chicagoans living in neighborhoods with a lower percentage of high school graduates are also more likely to use libraries. So, some low-income communities have relatively more library use.

The map on the next page shows library use across the community areas. There is one community area with very high use (Armour Square, in blue). The yellow areas are estimated to have at least 35 percent of the population using the internet at the Chicago Public Library - somewhat higher than the city-wide average of 33 percent. Some, but not all low-income communities have higher usage of the internet at the library. The red areas are estimated to have less than 35 percent of residents who use the internet at the library, and are around the city-wide average or lower.


Percent Who Use the Internet at the Library
CITY OF CHICAGO
RICHARD M. DALEY
MAYOR
DEPARTMENT OF ZONING
AND LAND USE PLANNING
PATTI SCUDIERO
COMMISSIONER
NO NAME
1 Rogers Park
2 West Ridge
3 Uptown
4 Lincoln Square
5 North Center
6 Lake View
7 Lincoln Park
8 Near North Side
9 Edison Park
10 Norwood Park
11 Jefferson Park
12 Forest Glen
13 North Park
14 Albany Park
15 Portage Park
16 Irving Park
17 Dunning
18 Montclare
19 Belmont Cragin
20 Hermosa
21 Avondale
22 Logan Square
23 Humboldt Park
24 West Town
25 Austin
26 West Garfield Park
27 East Garfield Park
28 Near West Side
29 North Lawndale
30 South Lawndale
31 Lower West Side
32 Loop
33 Near South Side
34 Armour Square
35 Douglas
36 Oakland
37 Fuller Park
38 Grand Boulevard
39 Kenwood
40 Washington Park
41 Hyde Park
42 Woodlawn
43 South Shore
44 Chatham
45 Avalon Park
46 South Chicago
47 Burnside
48 Calumet Heights
49 Roseland
50 Pullman
51 South Deering
52 East Side
53 West Pullman
54 Riverdale
55 Hegewisch
56 Garfield Ridge
57 Archer Heights
58 Brighton Park
59 McKinley Park
60 Bridgeport
61 New City
62 West Elsdon
63 Gage Park
64 Clearing
65 West Lawn
66 Chicago Lawn
67 West Englewood
68 Englewood
69 Greater Grand Crossing
70 Ashburn
71 Auburn Gresham
72 Beverly
73 Washington Heights
74 Mount Greenwood
75 Morgan Park
76 O'Hare
77 Edgewater
Legend
Percent Who Use the Internet at the Library
16.00% to 35.00% Red
35.01% to 49.99% Yellow
50.00% or higher Blue
COMMUNITY AREA

Libraries are clearly fulfilling an important need for some of the less-connected in Chicago, at the same time that they appeal to those who are frequently online. To what extent are community technology centers being used by Chicago residents, and who is most likely to use public access there?

Community Technology Centers

Community technology centers (CTCs) are also important for public access in Chicago, as 16 percent of city residents (21 percent of Chicago internet users) report having used a community technology center. Survey respondents were asked, "As far as you know, is there a place where you can go in your neighborhood where the internet is publicly available to anyone who wants to use it? Such places are often called Community Technology Centers." Respondents were then asked a follow-up question about whether they had ever used the internet at such a place.

Because community technology centers target low-income neighborhoods, we focused the regression analysis on **low-income communities only** (census tracts with poverty rates above the mean). Given the potential importance of the neighborhood context, the main model for internet use at community technology centers (CTCs) is a multilevel model that includes neighborhood characteristics.

According to the multilevel model, which includes both individual-level and neighborhood characteristics (Appendix B):

- Parents are more likely to use CTCs in this low-income sample, and this contrasts with the findings for libraries.
- African-Americans are more likely to visit a CTC than white residents.
- Similar to the library findings, community technology center users are also younger, better-educated, and those who perceive the CTC to be convenient.
- CTC use increases as neighborhood poverty increases, even in this sample of poor neighborhoods.

This suggests that CTCs are certainly reaching some of the poorest residents. Again, African-Americans are frequent users of public access, but Latinos are not significantly more likely than whites to use CTCs in low-income communities.

Looking at low-income neighborhoods only, CTC use is higher in the poorest communities; parents are also more likely to use CTCs.

There are some commonalities in use of public access across the city. While libraries and CTCs seem to be reaching disadvantaged residents, users also tend to be better-educated and younger. There are two co-existing patterns – users who are more likely to be interested in technology, but also those who are less-connected. Low-income residents are served by both libraries and CTCs. This is particularly evident in community technology centers, where use increases with neighborhood poverty.

Wireless Access

Wireless can provide more frequent access for residents and businesses through networks that accommodate mobile use with laptops and a variety of handheld wireless devices. Wireless networks can also provide connections for individuals without home access. Currently, this is available in libraries and other public places, as well as "hot spots" that are sponsored by some businesses, such as coffee houses. There is the potential to provide both mobile and home access through wireless networks that cover residential areas of the city.

What does wireless use look like currently? Using simple percentages, it is clear that wireless use is fairly common now and promises to grow in the future. More than one-third of city residents (35 percent) and nearly half of Chicago internet users (46 percent) have gone online using wireless access in a public place. Young Chicago residents aged 18-29 are the most likely users of wireless, as 55 percent use public wireless networks, and 35 percent do so at least a few times per month. Whether it is through laptops, cell phones, or other mobile devices, there is a fair amount of use of wireless networks in the city. Table 3 shows simple percentages for frequency of wireless use by age.

TABLE 3. FREQUENCY OF WIRELESS USE IN PUBLIC PLACE BY AGE
Percent of city population

	18-29	30-59	60-74	75 and over	Total, all ages
Daily/few times per month	35%	25%	9%	1%	21%
Rarely	20%	15%	10%	2%	14%
Total percent for age group	55%	40%	19%	3%	35%

Table 4, below, displays percentages for wireless use by race and ethnicity, demonstrating that Asian-Americans are ahead of other groups. Nearly one-third of African-Americans and Latinos have used wireless in Chicago, although this is less than other groups.

TABLE 4. FREQUENCY OF WIRELESS USE IN PUBLIC PLACE BY RACE AND ETHNICITY
Percent of city population

	White Non-Hispanic	Black	Asian	Latino	Total
Daily/few times per week	25%	18%	38%	19%	21%
Rarely	15%	12%	16%	12%	14%
Total percent for group	40%	30%	54%	31%	35%

Hand-held wireless devices such as internet-enabled cell phones or "smartphones" also provide a way to access the internet, and today they can accomplish a range of uses despite their smaller screens. This poses the question of whether some residents who do not have home internet access are going online through cell phones rather than through personal computers. In some newly-industrializing countries, for example, cell phone use is the most common way to go online. Could this be true in the U.S., at least among some who were not previously internet users? Table 5 below shows simple percentages describing internet access through cell phones by age in Chicago.

TABLE 5. FREQUENCY OF CELL PHONE USE TO CONNECT TO INTERNET BY AGE
Percent of city population

	18-29	30-59	60-74	75 and over	Total, all ages
Daily/few times per month	26%	14%	4%	1%	13%
Rarely	13%	7%	3%	1%	7%
Total percent for age group	39%	21%	7%	2%	20%

One-fifth of Chicago internet users have used a cell phone for internet access. This is clearly more important for younger residents, with 26 percent of 18-29 year-olds reporting that they go online this way at least a few times per month (double the average of 13 percent for the city). Personal computers remain the dominant way to access the internet in Chicago, but the relatively high rates of use among the young indicate potential for future growth. Patterns of cell phone use by race and ethnicity are indicated in simple percentages in Table 6 below, which also shows the percentage of residents who use cell phones to connect to the internet but have no home internet access. This provides a way to assess the extent to which cell phone use is substituting for home internet use, especially among populations that have traditionally been less-connected.

TABLE 6. FREQUENCY OF CELL PHONE USE TO CONNECT TO INTERNET BY RACE AND ETHNICITY
Percent of city population

	White Non-Hispanic	Black	Asian	Latino	Total
Daily/few times per month	12%	12%	20%	12%	13%
Rarely	6%	8%	10%	7%	7%
Total percent for group	18%	20%	30%	19%	20%
Percent of population who use daily/few times per month and have no home internet	**1%**	**3%**	**0%**	**2%**	**2%**

Cell phone use to go online is higher among Asian-Americans, but there is clearly no substitution for home access in this group. African-Americans and Latinos appear to use cell phones to connect to the internet as a substitute for home computers at times. However, such small differences may be due to sampling. Overall, cell phones still do not replace home access, according to these results.

In summary, wireless networks present a number of opportunities to supplement home use or to provide low-cost internet connections for city residents. They therefore encourage more widespread use, more frequent use, flexibility, and innovative applications in new settings. Over a third of Chicago residents have accessed the internet through some type of wireless device, and the concentration of such use among residents under 30 suggests that this trend is likely to increase in the future, especially with advances in technology. Free and public wireless access can encourage frequency of use, and may extend access for some, especially if it is available in more areas of the city. Will this make much difference, however? To what extent is the reason that people are offline a matter of cost, for example, or a simple lack of interest? To what extent are skills and technical support also needed? We examine the barriers that residents themselves perceive for achieving digital excellence.

PART IV. BARRIERS TO ACCESS AND PUBLIC POLICY

Home access is an important resource for achieving digital excellence. We asked those who do not use the internet at all as well as those who do not use it at home to choose any and all reasons for not using the internet at home, and then asked them to select the most important reason for not having an internet connection at home. In this way, we could better understand whether respondents who said that they can't afford the internet might simply be uninterested as well, and therefore not very motivated to spend money on a computer or a monthly internet bill.

TABLE 7. REASONS FOR NO INTERNET AT HOME
Percent of respondents who do not use the internet at home

	Main reason	One reason
Don't need it/not interested	30%	48%
Cost is too high	27%	52%
Can use it elsewhere	5%	52%
Don't have time	5%	24%
Too difficult to use	9%	43%
I am worried about privacy	2%	57%
The internet is dangerous	2%	46%
Hard to use information in English	1%	19%
Physical impairment	3%	13%
Other	16%	--

When respondents are allowed to give multiple answers, issues such as privacy and danger emerge as secondary reasons for many respondents, even though few residents cite them as the main reason for not having the internet at home. Difficulty is also more important as a secondary reason – people who do not have the internet at home may not choose this as the only reason for not investing in the internet, but they are less confident of their skills. Only 5 percent say that use outside the home is their main reason for not having home access, but over half of the respondents can use the internet somewhere else. Still, there is little statistical relationship between the reasons for not using the internet at home in Table 7 below, even when respondents could choose multiple answers.[27] In other words, our analysis shows that those who are not interested in having the internet at home, for example, are not the same respondents who say that cost is the issue.

Table 7 shows that interest, affordability, and skill stand out as the most important main reasons for not having a home connection, and that there are some interesting patterns by race and ethnicity when we examine simple percentages for the main reason for not having the internet at home. Table 8, below, shows these patterns by race and ethnicity.

[27] This was explored through factor analysis and through correlations.

TABLE 8. MAIN REASON FOR NO INTERNET AT HOME BY RACE AND ETHNICITY
Percent of respondents who do not use the internet at home

	White Non-Hispanic	Black	Asian	Latino	Total
Don't need it/not interested	42%	29%	42%	19%	31%
Cost is too high	14%	30%	12%	37%	27%
Too difficult to use	9%	8%	9%	13%	9%

There is considerable variation by race and ethnicity in the main reason for not having the internet at home. More white and Asian-American residents who do not currently use the internet at home are not interested, and African-Americans and Latinos are by far more concerned about cost. Latinos are the group most likely to say that difficulty using the internet is the main reason for not having it at home.

To sort out differences in reasons for not having home access, we conducted multivariate regression. What Matters Table D on the next page presents the results for lack of interest, cost, and difficulty using the technology. Appendix A also shows the results of the regression analysis for several other reasons that were less common as main reasons for not using the internet at home: use elsewhere; lack of time; and privacy concerns. **Latinos and higher-income residents are statistically more likely to be among those who say they do not have time. Latinos and women are more likely to have privacy concerns. Those who use the internet elsewhere are also more educated and younger than others without home access.** Because of space considerations we do not analyze these here, but readers can consult the results in the appendix.

What Matters Table D: What are the Reasons Chicago Residents Do Not Have Home Internet?

The factors listed below are the statistically significant influences on the following reasons for not using the internet at home. A plus sign (+) indicates increased probability for giving this reason, and a minus sign (-) indicates a decreased chance of citing this reason.

Not Interested
Age (+)
Income (+)
Education (-)
African-American (-)

Cost is Too High
Income (-)
Latino (+)
Female (+)
Education (-)

Difficult to Use
Age (+)
Education (-)
Latino (+)
African-American (-)*

***borderline significance**

What Matters Table D continued: What are the Reasons Chicago Residents Do Not Have Home Internet?

Reading Predicted Probabilities: A female, white non-Hispanic Chicago resident with no children and average age, income, and education who does not use the internet at home has a 50 percent probability of saying that this is because she is not interested. Results shown below indicate, for example, that a respondent who is Latino, but otherwise the same, has a 48 percent chance of saying she is not interested. Latino ethnicity alone makes a 2 percent difference, holding other factors constant, and is not significant. Read the numbers not in parentheses as percentages.

	Not Interested	**Cost is Too High**	**Too Difficult to Use**
White non-Hispanic (Baseline)	.50 (.04)	.54 (.04)	.43 (.04)
Latino	.48 (.04)	.69 (.05)	.57 (.04)
Difference Latino vs. White	-.02	+.15	+.14
Black	.43 (.04)	.57 (.03)	.36 (.03)
Difference Black vs. White	-.07	+.03	-.07
Male	.55 (.04)	.39 (.04)	.37 (.04)
Difference Female vs. Male	-.05	+.15	+.06
Annual Income			
Very Low ($0, -2SD)	.40 (.05)	.72 (.04)	.50 (.05)
Low ($10,000- $20,000, -1SD)	.47 (.04)	.59 (.03)	.45 (.04)
Mean/Average ($40,000 - $50,000)	.50 (.04)	.54 (.04)	.43 (.04)
High ($75-$100,000, +1SD)	.62 (.05)	.29 (.04)	.35 (.05)
Very High (more than $150,000, +2SD)	.66 (.05)	.21 (.04)	.31 (.05)
Difference Low to High	+.15	-.30	-.10
Education Level			
Less than HS	.54 (.04)	.58 (.04)	.52 (.04)
High School Graduate	.52 (.04)	.56 (.04)	.47 (.04)
Some College	.46 (.04)	.52 (.04)	.37 (.04)
College Graduate	.43 (.04)	.50 (.04)	.32 (.04)
Graduate Degree	.40 (.05)	.47 (.05)	.28 (.04)
Difference HS to College	-.09	-.06	-.15
Age of respondent			
Very young (18 yrs, -2 SD)	.24 (.05)	.50 (.06)	.15 (.04)
Young (31 yrs, -1 SD)	.32 (.05)	.51 (.05)	.22 (.04)
Mean/Average (49 yrs)	.50 (.04)	.54 (.04)	.43 (.04)
Old (, 67 yrs, +1 SD)	.56 (.03)	.55 (.03)	.52 (.03)
Very old (85 yrs, +2 SD)	.68 (.03)	.57 (.03)	.67 (.03)
Difference Young to Old (27-67 yrs)	+.24	+.04	+.30

Note: Predicted probabilities calculated with Clarify Software from the logistic regression models reported in Appendix Table 5. Probabilities estimated with control variables set at mean or modal values. Standard errors of the probability estimate in parentheses.

Respondents were asked why they did not have internet access at home and could give multiple reasons. The most frequently cited answers for the main reason were "I don't need it/not interested," "the cost is too high," "It's too difficult to use." Columns 1, 2 and 3 of What Matters C show the predicted probability of citing one of the above responses, respectively, by demographic attributes of the respondents.

The analysis shows that among those who do not have the internet at home, older and higher income respondents are uninterested, and African-Americans are significantly less likely than other racial and ethnic groups to say that they have no interest in the internet.

Older and more affluent respondents without home access cite lack of interest

- Older respondents are 24 percent more likely to cite a lack of interest as the reason they are offline compared to young respondents; a 31 year-old (one standard deviation below the mean) has only a 32 percent probability of saying he or she is not interested, compared to an older individual (67 years, one standard deviation above the mean), who has a 56 percent probability of citing this reason.

- Higher-income residents are also more likely to say that they are uninterested. Residents with annual family incomes between $75,000 and $100,000 are 15 percent more likely to cite lack of interest than respondents with incomes between $10,000 and $20,000.

- In comparison, education makes a smaller difference than age and income. Residents with a high school diploma are 9 percent more likely than college graduates to say they are not interested in the internet.

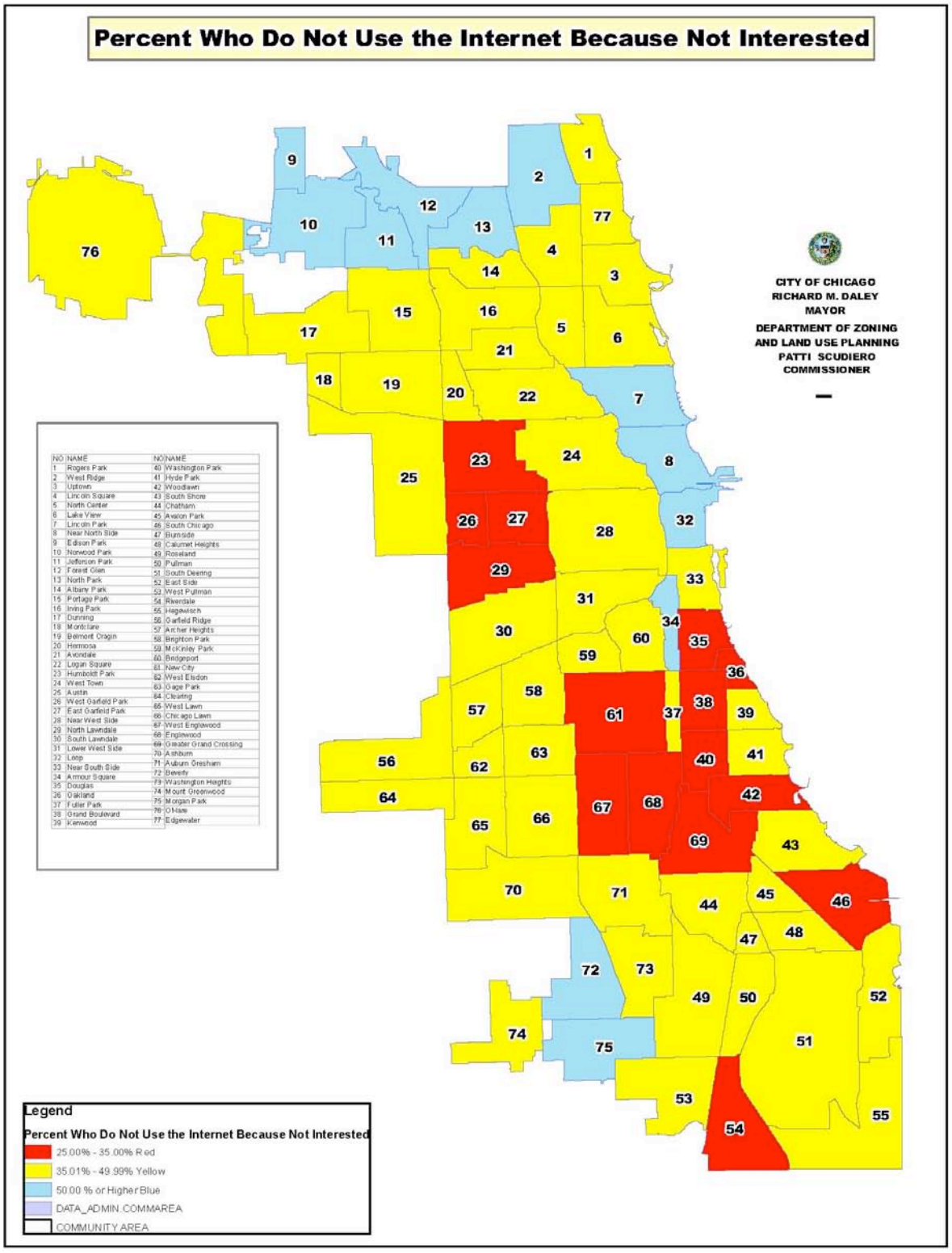
- African-Americans are 7 percent **less** likely than whites to cite a lack of interest in going online.

Neighborhood Variation in Interest

Multilevel models (see Appendix B) show that income matters at the community level as well as at the individual level:

- Residents of more affluent neighborhoods without home internet access are more likely to say that they are not interested in going online.

The map on the next page shows clearly this pattern for income. Community areas in blue are estimated to have 50 percent or more of residents without home access who lack interest in the internet. Community areas in red are estimated to have between 25 and 35 percent of those without home access who give this reason. Red areas tend to be among low-income areas in Chicago.


Percent Who Do Not Use the Internet Because Not Interested
CITY OF CHICAGO
RICHARD M. DALEY
MAYOR
DEPARTMENT OF ZONING
AND LAND USE PLANNING
PATTI SCUDIERO
COMMISSIONER
NO NAME NO NAME
1 Rogers Park 40 Washington Park
2 West Ridge 41 Hyde Park
3 Uptown 42 Woodlawn
4 Lincoln Square 43 South Shore
5 North Center 44 Chatham
6 Lake View 45 Avalon Park
7 Lincoln Park 46 South Chicago
8 Near North Side 47 Burnside
9 Edison Park 48 Calumet Heights
10 Norwood Park 49 Roseland
11 Jefferson Park 50 Pullman
12 Forest Glen 51 South Deering
13 North Park 52 East Side
14 Albany Park 53 West Pullman
15 Portage Park 54 Riverdale
16 Irving Park 55 Hegewisch
17 Dunning 56 Garfield Ridge
18 Montclare 57 Archer Heights
19 Belmont Cragin 58 Brighton Park
20 Hermosa 59 McKinley Park
21 Avondale 60 Bridgeport
22 Logan Square 61 New City
23 Humboldt Park 62 West Elsdon
24 West Town 63 Gage Park
25 Austin 64 Clearing
26 West Garfield Park 65 West Lawn
27 East Garfield Park 66 Chicago Lawn
28 Near West Side 67 West Englewood
29 North Lawndale 68 Englewood
30 South Lawndale 69 Greater Grand Crossing
31 Lower West Side 70 Ashburn
32 Loop 71 Auburn Gresham
33 Near South Side 72 Beverly
34 Armour Square 73 Washington Heights
35 Douglas 74 Mount Greenwood
36 Oakland 75 Morgan Park
37 Fuller Park 76 O'Hare
38 Grand Boulevard 77 Edgewater
39 Kenwood
Legend
Percent Who Do Not Use the Internet Because Not Interested
25.00% - 35.00% Red
35.01% - 49.99% Yellow
50.00 % or Higher Blue
DATA_ADMIN.COMMAREA
COMMUNITY AREA

Low-income respondents and Latinos are among those who cite cost as the main factor, as seen in column 2.

Residents citing cost are in fact low-income; Latinos are among the most likely to view cost as a barrier

- The largest factor influencing those who say that cost is too high is, not surprisingly, family income. The poor (with incomes between $10,000-$20,000 one standard deviation below the mean) are 30 percent more likely to perceive cost as a barrier to home access than the affluent (incomes between $75,000-$100,000, plus one standard deviation above the mean), all else equal. Poor Chicago residents have a 60 percent probability of citing cost barriers, compared to higher-income residents, who have less than a 30 percent chance of saying this.

- Holding a respondent's income, education and age constant, Latinos were 15 percent more likely to say cost is a problem for internet access than non-Hispanics.

- African-Americans, in contrast, were only 3 percent more likely than whites to say cost is an issue for home access, controlling for other factors.

- Interestingly, women were 15 percent more likely than men to mention cost as a reason for not having home access, all else equal.

Neighborhood Variation in Cost Concerns

According to the multilevel models (Appendix B), there is variation across Chicago neighborhoods in cost as a barrier to home access:

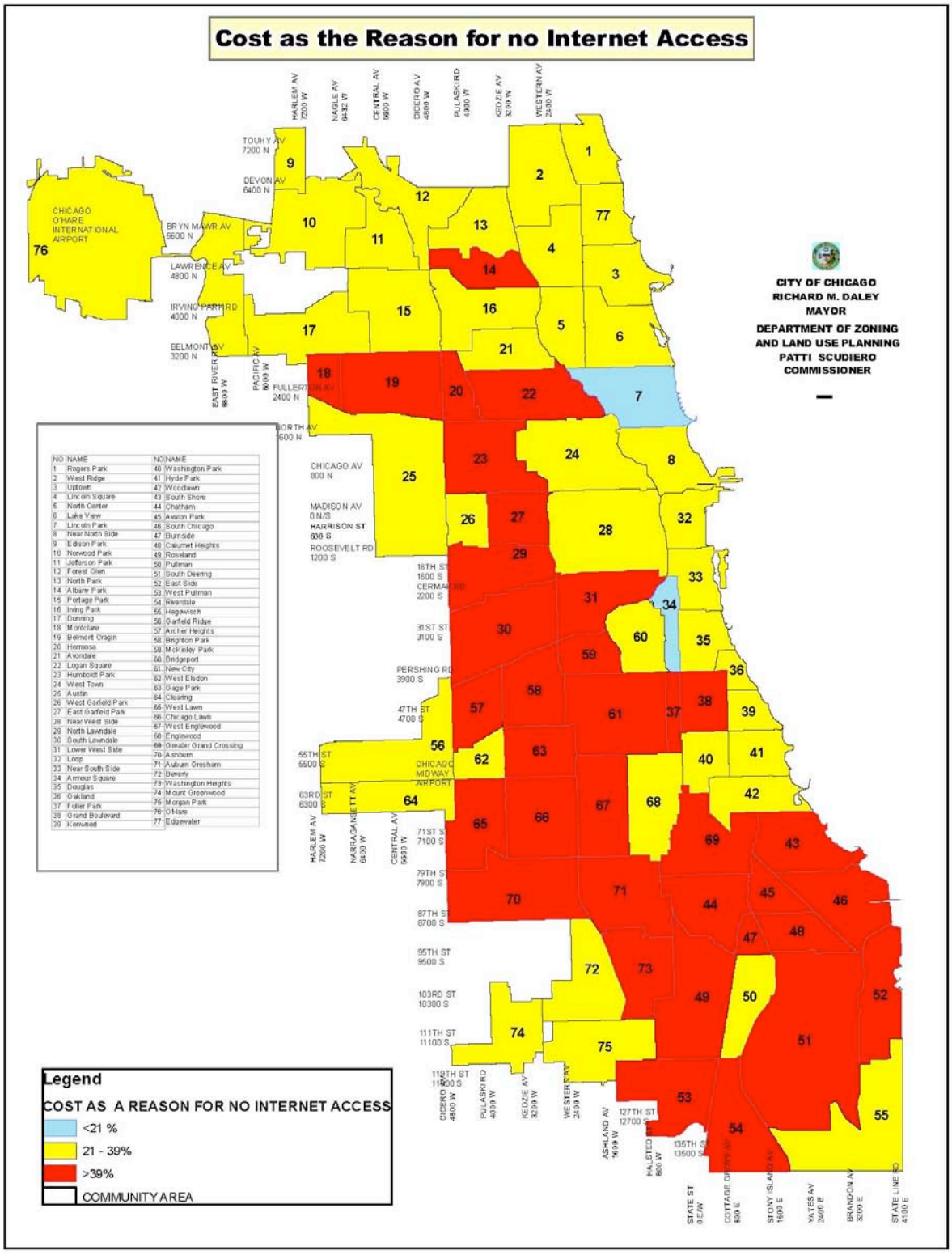
- Residents of communities with high African-American populations are more likely to state that cost is the main reason for not having the internet at home.

- Residents in neighborhoods with high proportions of Latinos are also more likely to cite cost.

- Cost concerns are more likely in neighborhoods with a higher level of high school graduation as well. More educated environments may increase interest, absent worries about cost.

The map on the next page shows community areas marked in red where 39 percent or more of the population without home internet connections cite cost barriers. Cost concerns are fairly important overall, but the red areas clearly cover many neighborhoods with high proportions of Latinos and African-Americans.

Cost is more likely the main reason for not having internet at home in neighborhoods with high percentages of African-Americans and Latinos


Cost as the Reason for no Internet Access
CITY OF CHICAGO
RICHARD M. DALEY
MAYOR
DEPARTMENT OF ZONING
AND LAND USE PLANNING
PATTI SCUDIERO
COMMISSIONER
NO NAME
1 Rogers Park
2 West Ridge
3 Uptown
4 Lincoln Square
5 North Center
6 Lake View
7 Lincoln Park
8 Near North Side
9 Edison Park
10 Norwood Park
11 Jefferson Park
12 Forest Glen
13 North Park
14 Albany Park
15 Portage Park
16 Irving Park
17 Dunning
18 Montclare
19 Belmont Cragin
20 Hermosa
21 Avondale
22 Logan Square
23 Humboldt Park
24 West Town
25 Austin
26 West Garfield Park
27 East Garfield Park
28 Near West Side
29 North Lawndale
30 South Lawndale
31 Lower West Side
32 Loop
33 Near South Side
34 Armour Square
35 Douglas
36 Oakland
37 Fuller Park
38 Grand Boulevard
39 Kenwood
40 Washington Park
41 Hyde Park
42 Woodlawn
43 South Shore
44 Chatham
45 Avalon Park
46 South Chicago
47 Burnside
48 Calumet Heights
49 Roseland
50 Pullman
51 South Deering
52 East Side
53 West Pullman
54 Riverdale
55 Hegewisch
56 Garfield Ridge
57 Archer Heights
58 Brighton Park
59 McKinley Park
60 Bridgeport
61 New City
62 West Elsdon
63 Gage Park
64 Clearing
65 West Lawn
66 Chicago Lawn
67 West Englewood
68 Englewood
69 Greater Grand Crossing
70 Ashburn
71 Auburn Gresham
72 Beverly
73 Washington Heights
74 Mount Greenwood
75 Morgan Park
76 O'Hare
77 Edgewater
Legend
COST AS A REASON FOR NO INTERNET ACCESS
<21 %
21 - 39%
>39%
COMMUNITY AREA

The last column of What Matters Table D shows that less-educated, older and Latino respondents are more likely to say that they have difficulty with the internet.

Older and less-educated residents find the internet difficult, as do Latinos

- Older respondents (one standard deviation above the mean) were 30 percent more likely to cite skill barriers compared to the young (one standard deviation below the mean).
- Respondents with only a high school degree were 15 percent more likely to say the internet is "too difficult to use" compared to those with a college degree.
- Latinos are 14 percent more likely to cite a lack of skills or difficulty going online as a barrier to use than white non-Hispanics, again indicating greater disparities for Latinos.
- In contrast, African-Americans are 7 percent **less** likely to cite skills as a barrier to use compared to whites who do not have home access. This may reflect internet use outside the home among African-Americans.

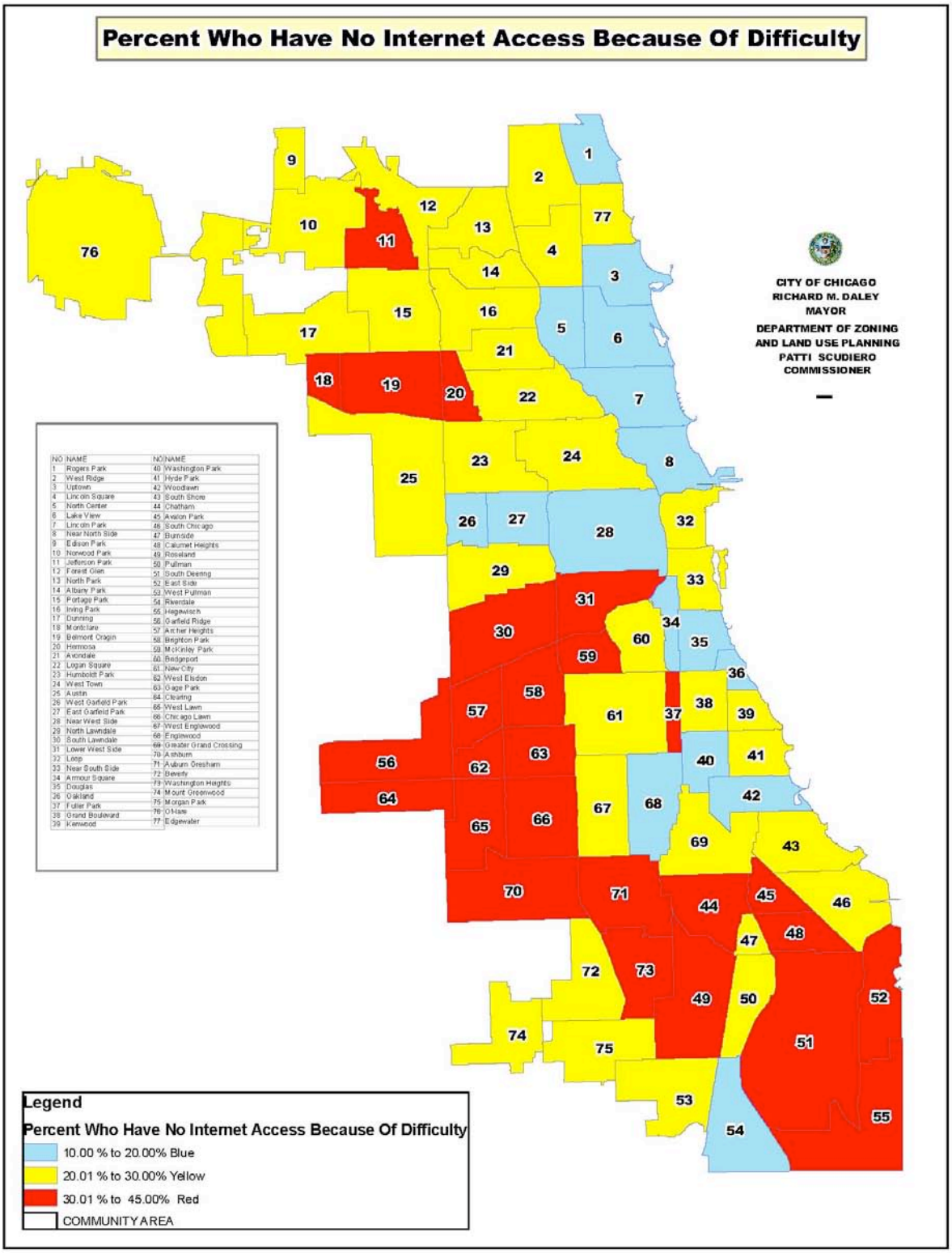
Neighborhood Variation in Difficulty Using the Internet

When neighborhood characteristics are introduced in multilevel models, there are two apparently contradictory findings:

- Individuals residing in higher-poverty census tracts are less likely to cite a lack of skills as a reason for not having home access, controlling for other factors. This may reflect the influence of other reasons, such as cost.
- Yet, residents in neighborhoods with a high percentage of African-Americans are more likely to mention difficulty in use (although at the individual level African-Americans are not).

This may suggest some skill deficits concentrated in these areas not captured by the other factors examined here. Residents of such areas may have experienced unequal quality of education.

The map on the next page shows diverse patterns as well. In this case, the community areas colored in red are estimated to have higher percentages of residents without home access who find internet use difficult (between 30 and 45 percent). It is clear that many largely-African-American community areas in the south of the city are on this list, but others are also colored in blue, meaning that they have the lowest rates of residents without access who have difficulty online (between 10 and 20 percent). The maps are based on multilevel models that combine neighborhood and individual characteristics, and factors such as age or Latino ethnicity of respondents are reflected in the results as well.


Percent Who Have No Internet Access Because Of Difficulty
CITY OF CHICAGO
RICHARD M. DALEY
MAYOR
DEPARTMENT OF ZONING
AND LAND USE PLANNING
PATTI SCUDIERO
COMMISSIONER
NO NAME
1 Rogers Park
2 West Ridge
3 Uptown
4 Lincoln Square
5 North Center
6 Lake View
7 Lincoln Park
8 Near North Side
9 Edison Park
10 Norwood Park
11 Jefferson Park
12 Forest Glen
13 North Park
14 Albany Park
15 Portage Park
16 Irving Park
17 Dunning
18 Montclare
19 Belmont Cragin
20 Hermosa
21 Avondale
22 Logan Square
23 Humboldt Park
24 West Town
25 Austin
26 West Garfield Park
27 East Garfield Park
28 Near West Side
29 North Lawndale
30 South Lawndale
31 Lower West Side
32 Loop
33 Near South Side
34 Armour Square
35 Douglas
36 Oakland
37 Fuller Park
38 Grand Boulevard
39 Kenwood
40 Washington Park
41 Hyde Park
42 Woodlawn
43 South Shore
44 Chatham
45 Avalon Park
46 South Chicago
47 Burnside
48 Calumet Heights
49 Roseland
50 Pullman
51 South Deering
52 East Side
53 West Pullman
54 Riverdale
55 Hegewisch
56 Garfield Ridge
57 Archer Heights
58 Brighton Park
59 McKinley Park
60 Bridgeport
61 New City
62 West Elsdon
63 Gage Park
64 Clearing
65 West Lawn
66 Chicago Lawn
67 West Englewood
68 Englewood
69 Greater Grand Crossing
70 Ashburn
71 Auburn Gresham
72 Beverly
73 Washington Heights
74 Mount Greenwood
75 Morgan Park
76 O'Hare
77 Edgewater
Legend
Percent Who Have No Internet Access Because Of Difficulty
10.00 % to 20.00% Blue
20.01 % to 30.00% Yellow
30.01 % to 45.00% Red
COMMUNITY AREA

Policy Implications

Summarizing the above results, we can see that there are some distinct differences in reasons for not having the internet at home. Those who say they can't afford the internet are indeed lower-income in comparison to other respondents without home access, and some residents who have difficulty with the internet are in fact less-educated, controlling for other factors. These individuals are different from those who are simply uninterested, and varied policy solutions are needed to address dissimilar barriers. Low-cost internet connections and hardware will help to bring more low-income residents online, but training and support are needed for those who are less-educated and less confident of their skills.

Residents who are uninterested in technology are different from others without home access because they are older and have higher incomes. Older respondents are more likely to say that they are not interested or that the technology is too difficult to use. Those who have higher incomes (within this group without home access) also lack interest or say that they have no time.[28] Greater awareness of what can be done online and the provision of support could change the minds of some.

There are clear opportunities for expanding home access among African-Americans, who have fewer negative attitudes toward technology than whites, consistent with earlier research and with use of technology outside the home.[29] They are less likely to say that they are not interested, or that the internet is too difficult to use. These relatively positive attitudes toward the internet might be translated into greater home access if it is affordable. While African-Americans are no more likely than whites to cite costs when we control for factors like income and education, the simple percentages show a tendency for African-Americans to be among the lower-income residents who are concerned with affordability. The multilevel models also show that residents of predominantly African-American and Latino neighborhoods are more likely to see cost as an issue.

Positive attitudes among African-Americans present an opportunity; Latinos, however, perceive many barriers

Latinos stand out as perceiving many barriers to home internet access: cost and difficulty were analyzed here, but results in Appendix A show that Latinos are also significantly more likely than non-Hispanic whites to cite lack of time and concerns about privacy. Latinos are also prevalent in the 19 percent of respondents without home access who mention language barriers online. Affordability, technical support and training are all needed to address disparities for Latinos. Recent immigrants, in particular, are likely to have a lack of experience with the internet as well as language barriers.

[28] The only modest correlation that we found between answers in the multiple response section was between lack of interest and lack of time.

[29] See Mossberger, Tolbert and Stansbury 2003. A national survey showed that African-Americans had significantly more positive attitudes toward public access, technology training, online education, and use of the internet for economic opportunity.

Another way of thinking about possible motivations to go online is to examine patterns of internet use among those who are online. Are there some activities on the internet that are more frequently engaged in by low-income residents or by minorities, for example? Could this tell us something about possible motivations for those who are not online, but may have similar information needs or preferences?

PART V. ONLINE ACTIVITIES THAT INFLUENCE OPPORTUNITIES FOR RESIDENTS

Once Chicago residents have bridged the digital access divide, the range of activities online is almost infinite. This section focuses on activities that public policy may have some interest in promoting, because they have the potential to enhance outcomes such as economic advancement, civic participation, access to government services, or health care. Table 8 below shows the simple percentages of Chicago residents and internet users engaging in the following activities online.

TABLE 9. ACTIVITIES ONLINE

Have ever used the internet to. . .	City Population	Internet Users
Read online news	67%	91%
Find health information	64%	86%
Find information on government	57%	76%
Get information about public transport	56%	74%
Get information on politics	53%	71%
Look for job information	50%	67%
Use City of Chicago website	49%	65%
Do work for your job	48%	64%
Take a class or training	31%	41%

Internet users perform many tasks online; the web is replacing other ways of finding information or conducting transactions in Chicago

There is a migration to the internet of activities that can be done offline (such as reading the news, contacting government, or finding health information) because of the convenience and information capacity online. While two-thirds or more of internet users have engaged in most of the above activities, city residents who are not online are excluded from the benefits of the internet for economic opportunity and for information. The balance of this section focuses on patterns of use for the city population, using multilevel models that include neighborhood characteristics.

Employment and Training

Internet and computer skills are increasingly required for jobs throughout the labor market, and the demand is not limited to the technology industry or to professional occupations. While there are certainly some low-skill positions that do not require internet use, occupations demanding internet use pay more, even for less-skilled workers who have a high school education or less. One study concluded

that in 2003, an average worker who used the internet on the job earned $118 per week more for internet use, controlling for other factors, including education and occupation. Wage-earners with a high school education or less gained nearly as much from internet use on the job - $111 per week. African-American and Latino workers with a high-school education or less received a slightly larger percentage wage increase from internet use than white workers, helping to narrow racial and ethnic wage gaps.[30] How relevant is internet use for less-educated workers in Chicago? Table 10 below shows internet use on the job in Chicago by educational attainment, including simple percentages for frequency of use. The figures are for employed Chicago residents only, rather than all residents.

TABLE 10. FREQUENCY OF INTERNET USE FOR JOB BY EDUCATION
Employed Chicago residents only

Educational Attainment	% of Employed Who Use the Internet for Work Daily or a Few Times Per Week
0-8 Years	9%
9-11 Years	13%
High School Graduate	33%
Vocational/Technical Education	35%
Some College	54%
4-Year College Degree	74%
Post-Graduate Study	88%
Total Employed	63%

33 percent of employed Chicago residents with a high school education use the internet for work daily or several times per week

Chicago residents who use the internet at work are most prevalent in high-skill occupations held by workers with a baccalaureate or post-graduate degree. There is a steep increase in internet use at work by educational attainment. A majority of the respondents with some post-secondary education use the internet at least occasionally on the job. But, it is also significant that 33 percent of employed respondents who have a high school education use the internet for work on a regular basis. These figures show that internet use is fairly common even in lower-skilled occupations that do not require college degrees. Internet use throughout a variety of industries is predicted to grow nationally over a number of years,[31] and digital skills will be increasingly important for the economic prospects of even

[30] Mossberger, Tolbert and McNeal 2008, 41. Controlling for other factors, African-American men earn an average 18.36% wage "premium" for internet use at work, African-American women earn 17.31% more, Latinos earn 16.99% more, and Latinas earn a 16.11% increase, while white men earn 14.77% more, and white women gain 13.56% . The benefits for internet use at work mean a larger increase for African-Americans and Latinos relative to white workers, because they tend to have lower wages.
[31] Litan and Rivlin 2002 (Brookings Institution)

less-educated workers, and for the city's ability to attract or cultivate innovative firms seeking technology-skilled employees.

How does internet use at work vary by age, and by race and ethnicity? Multilevel models (Appendix B) were used to predict internet use at work for those who are employed (rather than the whole city population).

- Chicago workers who are less likely to use the internet at work are Latino, African-American, low-income, and less-educated.
- Residence in a neighborhood with low educational attainment discourages internet use at work.

Internet use at work tracks disparities in internet use generally

Internet use on the job can increase wages, but internet use for job search and training may contribute to economic advancement as well. National research shows that despite having lower rates of internet use, African-Americans are more likely than other groups to search for jobs online.[32] This is true in Chicago as well.

Multilevel models for the (Appendix B) demonstrate that:

- Chicago residents who are more likely to search for jobs online are younger, African-American, and residents with higher incomes and higher education.
- Latinos are less likely to search for jobs online than white non-Hispanics.
- Neighborhood factors are not significant.

Those who use the internet for job search are generally residents most likely to use the internet – with the exception of African-Americans. Prior research has shown that African-Americans, in particular, associate internet use with economic opportunity. High use of online job search may be perceived as a strategy to counter discrimination in the job market.[33]

African-Americans are more likely to search for jobs online; Latinos are less likely

Distance education, online training provided by employers, and other online courses provide new possibilities for economic advancement for disadvantaged workers. Multilevel models for online education (Appendix B) demonstrate that:

- Residents who are more likely to take classes or training over the internet are younger, higher-income and more educated Chicago residents.

[32] Pew Internet and American Life Project , May 2008, internet trends over time at pewinternet.org; Mossberger, Tolbert and Stansbury 2003.
[33] Mossberger, Tolbert and Stansbury 2003.

- There are no statistical differences based on race, ethnicity or gender.
- Neighborhood characteristics are not significant.

Clearly the aspiration to succeed economically presents an opportunity to promote digital excellence among many Chicago residents. Neighborhood factors are significant for internet use for the job, but do not affect online job search or training. Research on low-income communities has concluded that residents are often isolated from better-paying jobs because they lack sufficient information about such opportunities in their informal information networks.[34] The internet can possibly extend those networks. Internet use is more prevalent in, but not confined to jobs requiring the highest levels of education, and jobs requiring the internet offer better compensation even for less-educated workers. Assistance with job search, online training or education, and digital skills for the workplace have particular relevance in low-income and minority communities, and should be an important part of public and community-based programs for digital excellence.

News and Politics Online

Survey respondents frequently reported reading online news, looking at political information online, and using government websites for information and services. Following online news is the most common activity included in the survey, as 91 percent of Chicago internet users have ever read the news online, and 74 percent pursue the news online at least a few times per week.

National research has demonstrated that use of online news is related to higher levels of civic engagement – political knowledge, interest, and discussion.[35] A number of studies have also established a positive link between use of online news and voting,[36] and this relationship is significant even taking into account the use of newspapers and television for news. While those who follow the news (from any source) also tend to have higher levels of civic engagement and voting, the research indicates that online news has increased benefits – perhaps because of its convenient availability, in-depth coverage, multi-media capacity, or the variety of sources that can be accessed.

Internet users also have many options for finding information about politics apart from online news. The sources have proliferated in recent years, with political blogs, campaign websites, interest group websites, YouTube videos and Facebook entries all contributing to the flow of political information, especially around election time. A little over half of the city's residents have gone online for political information according to our June and July 2008 survey.

Multilevel models, including neighborhood characteristics, were estimated for use of political information online for the city population (see Appendix B). They reveal that:

[34] The classic study is Granovetter (1973).
[35] See Tolbert and McNeal 2003, and chapter 3 of Mossberger, Tolbert and McNeal (2008) for a description of the use of two-stage models in this research, as well as more details on the results.
[36] Bimber 2003; Tolbert and McNeal 2003, among others.

- Chicago residents most likely to be interested in politics online are younger, white non-Hispanic, higher-income, better-educated, and male. This is consistent with published research.[37]

- Parents, however, are less likely than those without children to look for political information on the internet. This may suggest time constraints for either politics or internet use.

- Residents of neighborhoods with high percentages of Latinos report more internet use for politics. This is an intriguing finding that could merit further investigation.

- Residents in neighborhoods with higher percentages of high school graduates are more likely to participate in politics online. Education (at the individual level) is one of the strongest predictors of political participation more generally, and findings on education in the neighborhood context underscore this point.

Politics online engages the young, who are otherwise less likely to be involved

The internet is changing politics because of its attraction for the young. In other ways, however, it continues more traditional divisions in political participation, especially those based on income and education. The findings for educational attainment in neighborhoods reinforce this pattern. Living in a Latino neighborhood is also associated with higher use of the internet to follow or engage in politics. This runs counter to more general patterns of lower internet use in Latino neighborhoods. Otherwise, disparities in internet use based on race, ethnicity, education and income threaten to widen gaps in political participation.

Digital Government

Government websites are another source of information on politics and public policy, but they also contain valuable information about services and online service transactions. E-government users have generally positive attitudes toward their online experiences, including feelings that government is more responsive, more effective, and efficient.[38] Government online increases the accessibility of government services. Paradoxically, low-income residents depend most on mass transit and other public services, yet are among those who are least likely to be online and to benefit from the convenience and access provided by e-government. National studies indicate that e-government users are more likely to be young, higher-income, educated and male.[39] Some national surveys have shown that local government may be different; higher percentages of African-Americans and women use local government websites.[40] It is unclear, however, whether African-Americans and women are more likely to use local websites controlling for factors such as income and education.

The survey contained questions about use of government websites (for any level of government), the City of Chicago website, and public transit websites for the Chicago Transit Authority

[37] Krueger 2002; Mossberger, Tolbert and Stansbury 2008 among others.
[38] West 2003; Welch, Hinnant and Moon 2006; Tolbert and Mossberger 2006.
[39] West 2005; Mossberger, Tolbert and Stansbury 2003.
[40] Larsen and Rainie 2002

(CTA) or Regional Transit Authority (RTA). Multilevel models that include neighborhood characteristics were estimated for all three types of government websites (see Appendix B). The models are for the city population as a whole (rather than internet users only).

Government websites (any level of government). Use of e-government in general bears some similarities to use of online political information in Chicago, and results for general e-government use in Chicago fit the national patterns, involving frequent internet users.

- Younger, white non-Hispanic, higher-income and better-educated residents are more likely to visit government websites.
- Residents of neighborhoods with higher percentages of Asian-Americans and African-Americans are also more attuned to digital government. This may suggest something about the neighborhoods that is not otherwise captured in the analysis.

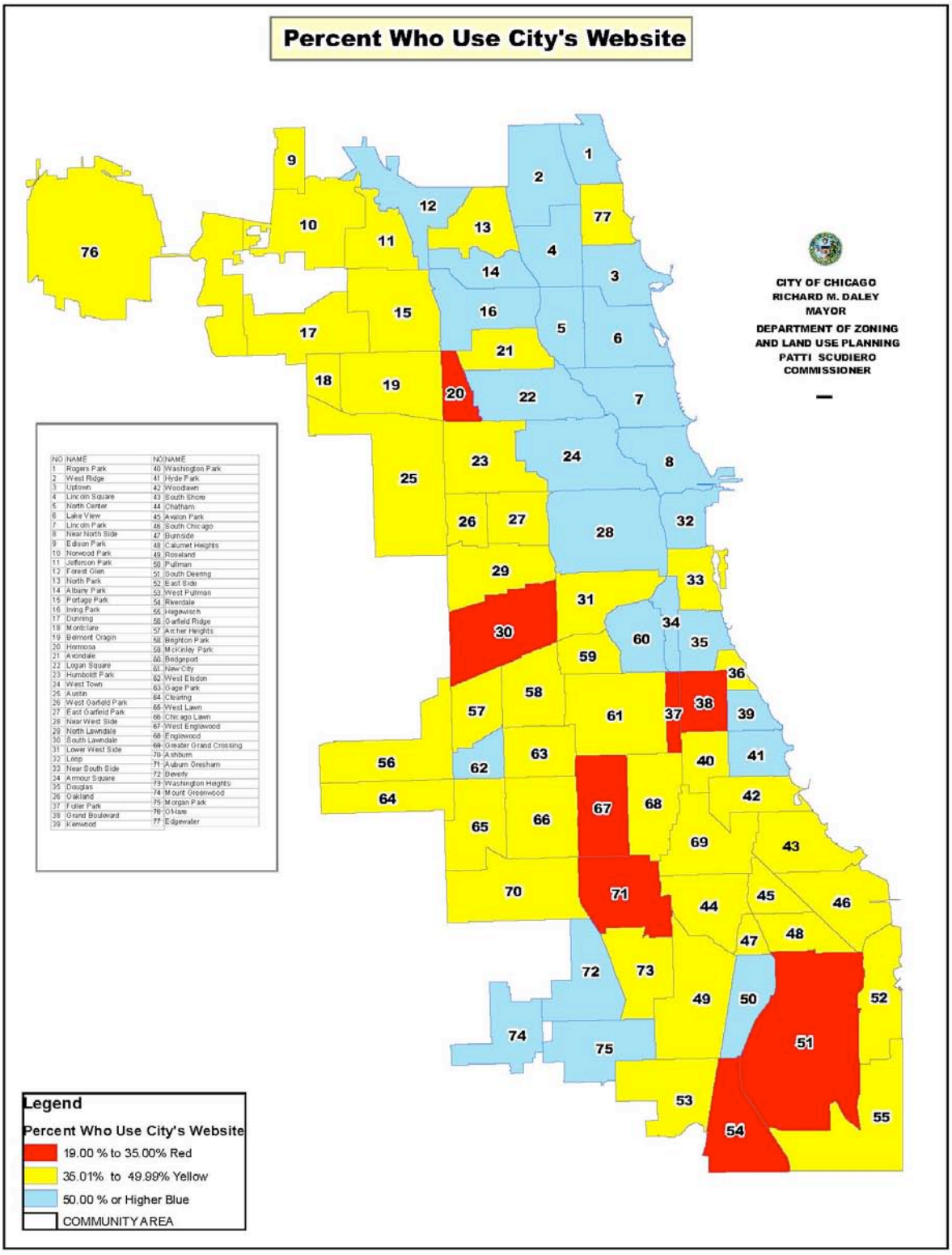
City of Chicago website. Nearly half of Chicago residents (49 percent) have used the city's website – slightly less than the 57 percent who have used any government website. Results for the local website confirm some of the national patterns for local e-government use apparent in earlier studies that did not use statistical analysis.

- Parents and female residents are more likely to use the city's website.
- Younger, more affluent, and more educated residents are significantly more likely to use the city's website.
- There are no statistical differences by race or ethnicity.

Local government websites may be particularly relevant for the daily routines of residents, attracting parents and women. While there are no racial or ethnic differences in local e-government use once we control for other factors, this contrasts with the findings for all levels of government. In general, users of the city's website are more diverse than general e-government users.

The map on the next page shows community areas in blue where use of the city's website is estimated to be 50 percent or more (above the city's 49 percent average). Neighborhood factors aren't significant predictors of city website use, although it is clear that areas with higher-income individuals account for some of the high-use areas in blue. Still, some lower income areas are shaded in blue and many low-income areas are included in the communities colored in yellow, where between 35 and 49 percent of residents are estimated to use the city's website.

Use of Chicago's website is more inclusive than e-government use in general; women and parents are more likely to use it, and there are no differences by race and ethnicity


Percent Who Use City's Website
CITY OF CHICAGO
RICHARD M. DALEY
MAYOR
DEPARTMENT OF ZONING
AND LAND USE PLANNING
PATTI SCUDIERO
COMMISSIONER
NO NAME NO NAME
1 Rogers Park 40 Washington Park
2 West Ridge 41 Hyde Park
3 Uptown 42 Woodlawn
4 Lincoln Square 43 South Shore
5 North Center 44 Chatham
6 Lake View 45 Avalon Park
7 Lincoln Park 46 South Chicago
8 Near North Side 47 Burnside
9 Edison Park 48 Calumet Heights
10 Norwood Park 49 Roseland
11 Jefferson Park 50 Pullman
12 Forest Glen 51 South Deering
13 North Park 52 East Side
14 Albany Park 53 West Pullman
15 Portage Park 54 Riverdale
16 Irving Park 55 Hegewisch
17 Dunning 56 Garfield Ridge
18 Montclare 57 Archer Heights
19 Belmont Cragin 58 Brighton Park
20 Hermosa 59 McKinley Park
21 Avondale 60 Bridgeport
22 Logan Square 61 New City
23 Humboldt Park 62 West Elsdon
24 West Town 63 Gage Park
25 Austin 64 Clearing
26 West Garfield Park 65 West Lawn
27 East Garfield Park 66 Chicago Lawn
28 Near West Side 67 West Englewood
29 North Lawndale 68 Englewood
30 South Lawndale 69 Greater Grand Crossing
31 Lower West Side 70 Ashburn
32 Loop 71 Auburn Gresham
33 Near South Side 72 Beverly
34 Armour Square 73 Washington Heights
35 Douglas 74 Mount Greenwood
36 Oakland 75 Morgan Park
37 Fuller Park 76 O'Hare
38 Grand Boulevard 77 Edgewater
39 Kenwood
Legend
Percent Who Use City's Website
19.00 % to 35.00% Red
35.01% to 49.99% Yellow
50.00 % or Higher Blue
COMMUNITY AREA

Mass transit use. Public transit plays an important role in Chicago. The Chicago Transit Authority (CTA) and the Regional Transit Authority (RTA) have online trip planners, schedules, and online transactions for fare cards. Seventy-four percent of internet users (56 percent of city residents) have used public transit websites for information or transactions, slightly higher than the percentage using the city's website.

Multilevel models (Appendix B) indicate that Chicago transit website users are mostly those who are online frequently, except that neighborhood poverty plays a role as well.

- Young, white non-Hispanic, higher-income and better-educated Chicagoans are among those who look up transit information online.
- Additionally, residents of neighborhoods with high poverty rates are also significantly more likely to use transit websites. Need matters as well as internet use.
- Controlling for other factors (such as neighborhood poverty), African-American and Latino neighborhoods are somewhat less likely to use mass transit information online. This indicates that not all poor neighborhoods are equally likely to have residents who use the internet for transit information.

Residents of poor neighborhoods are among the most likely to use public transit websites

The findings for the city and transit websites suggest that the need for greater access to local services may also be a motivating factor for residents to go online, particularly in communities where there is reliance on mass transit and other public services. At the same time, some poor communities are less connected to online mass transit information. For city services more generally, there is more diversity of use.

Health Care

Among the online activities included in the survey, looking for health information is one of the most common, with 64 percent of the population (86 percent of internet users) who have done this at some time. Health information can be challenging to understand, as some websites are oriented to practitioners, and others have questionable credentials. Information literacy is particularly critical in this area, for internet users need to make judgments about the credibility of sources and to pay attention to how recently information has been posted or updated.

Multilevel models for use of online health information (Appendix B) show some interesting patterns:

- Younger, more affluent, and more educated residents are more likely to turn to the internet for health information.

- Women and parents are also more likely to use the internet for this purpose. This fits with previous research demonstrating that women and caretakers are the most frequent users of health information on the web.[41]

- Latinos are significantly less likely than non-Hispanic whites to find health information online.

- But, there are no significant differences between African-Americans and whites, controlling for other factors such as income, education, and neighborhood.

- Respondents who live in neighborhoods with a high percentage of African-Americans and Latinos are less likely to research health online, indicating some spatial patterns to health disparities online.

Women and parents, in particular, value online health information; there are no differences between African-Americans and whites

Summary on Internet Activities

Looking across these many activities, the impact of disparities in internet use are visible, especially for Latinos, low-income, and less-educated residents. Low-income and minority neighborhoods account for some disparities as well. But there are also indications that some uses of the internet may provide a particular motivation to go online in low-income communities. The internet can be an equalizing force in providing access to information and services. African-Americans use online job information to a greater extent than whites. Young residents are among the most frequent users of politics and news online as well as e-government, even though traditionally they are most apathetic about politics and civic affairs. Residents of poor communities use public transit websites more. Local e-government attracts more women and parents than other government sites, and for local government there are no real differences based on race or ethnicity. African-Americans are just as likely as whites to look for health information on the web. Embedded in these findings are some indications of how to engage more residents who are now unconnected or less-connected.

VI. CONCLUSION: CHALLENGES AND OPPORTUNITIES FOR DIGITAL EXCELLENCE IN CHICAGO

Although 75 percent of Chicago residents have some experience with the internet, almost 40 percent are either offline completely or have limited access. Regular and effective use is built on a foundation of home access and high-speed connections, which foster more frequent use, knowledge of activities online, and digital skill. Are there some solutions that might be employed? Is there public support for addressing these issues?

Public Opinion as an Opportunity

Chicago residents favor policies to close these gaps through greater availability of internet access. One of the questions included on the survey introduced the topic of wireless networks and

[41] Fox 2005

asked residents to choose among several options. Respondents were told: "There's been talk about building a wireless network in neighborhoods in Chicago. Which of the following should be the focus in doing this project?" Table 11 compares the responses for the city population, lower-income neighborhoods, and higher-income neighborhoods. Lower-income neighborhoods had median incomes lower than the city's mean, and higher-income neighborhoods were above the mean.

TABLE 11. Where Should a Wireless Availability Project Start?

Choices	Respondents		
	City Population	**Lower-income Neighborhoods**	**Higher-income Neighborhoods**
All over the city	50%	50%	47%
In low-income neighborhoods	13%	15%	9%
In public schools, libraries, public places	26%	24%	29%
Shouldn't work on this project	7%	5%	11%
Don't know	3%	3%	3%

For the city as a whole, 89 percent supported some type of initiative. The most popular alternative was to provide wireless across the city – supported by half of Chicago residents. Approximately one-quarter of the respondents chose wireless in public places, and about half as many (13 percent) favored providing wireless first in low-income neighborhoods. There are small differences by neighborhood, with residents of lower-income areas slightly more likely to choose low-income areas first and slightly less likely to support wireless in public places first. Residents of higher-income neighborhoods are a bit more critical of the idea overall, although the differences are modest – at most 5-6 percentage points different from low-income areas.

Residents were also asked whether they would support a wireless project if it involved a small tax or fee increase. As expected, support for wireless dropped, but there is still majority backing for the idea – 61 percent for the city as a whole, 60 percent for low-income neighborhoods, and 56 percent for higher-income neighborhoods. Overall, Chicagoans have a positive view of wireless programs. This may indicate more general support for technology initiatives in the future.

TABLE 12. Would You Support a Wireless Availability Project for a Small Tax or Fee Increase?

	Respondents		
	City Population	**Lower-income Neighborhoods**	**Higher-income Neighborhoods**
Yes	61%	60%	56%
No	32%	28%	36%
Don't know	7%	7%	6%
Refused/missing	--	3%	1%

Challenges and Opportunities for Addressing Disparities

At the same time that this report provides a straightforward assessment of existing inequalities, there are reasons to be optimistic about the future if current challenges are met. Digital gaps are patterned along familiar lines – age, income, education, race and ethnicity. Latinos stand out as the group in Chicago that is least-connected to the internet, especially among those who predominantly

speak Spanish. African-Americans are striving toward equity online, as race accounts for a relatively small gap in internet use anywhere, but a larger gap in home access. In turn, African-Americans have higher use of public access, and African-Americans who lack home access have more positive attitudes toward technology than similarly-situated whites. Latinos, who perceive more barriers to technology use than other groups, are much more likely to cite cost rather than a lack of interest for not using the internet at home. There is an opportunity to reach disconnected or less-connected African- American and Latino residents with affordable access and appropriate training and support. The significance of income – especially for home access and for broadband as well – demonstrates that it is poor residents who are often excluded from the benefits of the internet. Our findings highlight differences in attitudes and needs across low-income groups, and community-based efforts are likely to be most successful in addressing these varied needs for outreach and assistance.

Age accounts for the largest disparities in internet use, and is one of the most important factors in home access and broadband use. Older residents are least likely to use public access, and are also least likely to express interest in the internet. While the aging of current internet users will continue to change this picture somewhat, the initial challenge with many older residents will be interest and awareness of the possibilities online.

Public access provided by libraries and community technology centers has made important inroads. Among those who use these resources most are low-income, African-American, and Latino residents. CTCs, in particular, serve the poorest residents of the city. Wireless access in public places accommodates internet users on the move, and over one-third of Chicago residents go online this way. But, as frequent use is most likely with home access and broadband, there is a need to encourage high-speed connections at home throughout the city. Experiments in several Chicago neighborhoods with implementing broadband access solutions to reach local residences and businesses are an important step for extending access and drawing lessons for the future. Critical elements in these efforts are the participation of community organizations and the provision of training and support, as well as low-cost hardware and software. Public access providers in these neighborhoods, and throughout the city, are important partners in supporting this effort as well.

The internet has become a critical resource for work, information, civic engagement, access to government services and health. As more information and services move online, the costs increase for residents who are excluded from this medium. Some activities clearly provide motivation to go online among groups that generally lag behind in internet use. African-Americans are more likely than whites to search for jobs online and residents of poor neighborhoods use transit websites more. E-government use shows no differences by race and ethnicity, and African-Americans are just as likely as whites to search for health information on the internet.

With better information about the state of internet use in Chicago, community organizations, residents, nonprofits, businesses, educational providers and public institutions can address both the challenges and opportunities for digital excellence.

REFERENCES

Bimber, Bruce. 2003. *Information and American Democracy: Technology in the Evolution of Political Power.* Cambridge: Cambridge University Press.

Bertot, J.C., P.T. Jaeger, L.A. Langa, C.R. McClure. 2006. Public Access Computing and Internet Access in Public Libraries: The Role of Public Libraries in E-Government and Emergency Situations. *First Monday,* 11 (9), September 4, 2006. Available at: http://firstmonday.org.

Fox, S.. 2005. *Health Information Online.* Pew Internet and American Life Project. Available at: http://www.pewinternet.org. Accessed December 31, 2008.

Fox, S. and G. Livingston. 2007. *Latinos Online.* Pew Internet and American Life Project and Pew Hispanic Center. Available at: http://www.pewinternet.org. Accessed December 31, 2008.

Granovetter, M.S. 1973. The strength of weak ties. *American Journal of Sociology* 78(6): 1360-80.

Katz, J.E. and R.E. Rice. 2002. *Social Consequences of Internet Use: Access, Involvement, and Interaction.* Cambridge, MA: MIT Press.

Krueger, 2002. Assessing the Potential of Internet Political Participation in the United States. *American Politics Research* 30: 476-98.

Larsen, E. and L. Rainie. 2002. The Rise of the E-citizen: How People Use Government Agencies' Web Sites. Pew Internet and American Life Project. Available [online]: www.pewinternet.org/reports/pdfs/PIP_Govt_Website_Rpt.pdf Litan, R.E. and A. M. Rivlin, eds. 2002. *The Economic Payoff from the Internet Revolution.* Washington, D.C.: Brookings Institution Press.

Mayor's Advisory Council on Closing the Digital Divide. 2007. The City that NetWorks: Transforming Society and Economy through Digital Excellence. May 2007. Available at: http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/DigitalDivide.pdf

Mossberger, K., D. Kaplan and M. Gilbert. 2008. *Going Online Without Convenient Access: A Tale of Three Cities. Journal of Urban Affairs*

Mossberger, K., C.J. Tolbert and R.S. McNeal 2008. *Digital Citizenship: The Internet, Society and Participation.* Cambridge, MA: MIT University Press.

Mossberger, K., C.J. Tolbert and M. Stansbury 2003. *Virtual Inequality: Beyond the Digital Divide.* Washington, D.C.: Georgetown University Press.

Tolbert, C. and R. McNeal. 2003. Unraveling the Effects of the Internet on Political Participation. *Political Research Quarterly* 56 (2): 175-85.

Tolbert, C. and K. Mossberger. 2006. The Effects of E-Government on Trust and Confidence in Government. *Public Administration Review* 66 (3): 354-69.

Van Dijk, J.A.G.M. 2005. *The Deepening Divide: Inequality in the Information Society.* London: Sage Publications.

Warschauer, M. 2003. *Technology and Social Inclusion: Rethinking the Digital Divide.* Cambridge, MA: MIT Press.

Welch, E.W., C. Hinnant and M.J. Moon. 2005. Linking Citizen Satisfaction with E-Government with Trust in Government. *Journal of Public Administration Research and Theory* 15 (1): 271-91.

West, D.M. 2004. E-government and the Transformation of Service Delivery and Citizen Attitudes. *Public Administration Review* 64 (1): 15-27.

West, D.M. 2005. *Digital Government: Technology and Public Sector Performance.* Princeton, NJ: Princeton University Press.

APPENDIX A

Table 1: Internet Use in General (Logistic Regression)

Independent Variables	Coef.	Robust Std. Err.	z	P>|z|
Age	-.077	.004	-19.40	.000
Latino	-1.263	.177	-7.15	.000
Black	-.525	.134	-3.93	.000
Asian	.296	.464	0.64	.524
Income	.363	.031	11.74	.000
Education	.472	.037	12.65	.000
Parent	.073	.140	0.52	.603
Female	-.144	.112	-1.27	.205
Constant	2.077	.302	6.89	.000
Number of obs = 3259				
Wald chi2(8) = 738.45				
Prob > chi2 = 0.0000				
Pseudo R2 = 0.4042				
Log pseudo likelihood = -1097.8317				

Table 2: Internet Use at Home (Logistic Regression)

Independent Variables	Coef.	Robust Std. Err.	z	P>|z|
Age	-.051	.003	-16.56	.000
Latino	-.546	.154	-3.56	.000
Black	-.559	.117	-4.77	.000
Asian	.447	.375	1.19	.233
Income	.379	.027	13.96	.000
Education	.371	.034	10.79	.000
Parent	.228	.119	1.92	.055
Female	-.043	.100	-0.42	.672
Constant	.348	.248	1.40	.161
Number of obs = 3259				
Wald chi2(8) = 778.28				
Prob > chi2 = 0.0000				
Pseudo R2 = 0.3283				
Log pseudo likelihood = -1355.5936				

Table 3: Broadband Internet Connection at Home (Logistic Regression)
(1-Broadband, 0-Dial-up Access)

	Coef.	Robust Std. Err.	z	P>|z|
Age	-.033	.004	-7.58	.000
Latino	-.553	.192	-2.87	.004
Black	.004	.179	0.02	.984
Asian	1.337	.766	1.75	.081
Income	.247	.037	6.63	.000
Educate	.212	.051	4.13	.000
Parent	-.201	.155	-1.30	.193
Female	-.130	.146	-0.88	.376
Constant	1.522	.365	4.17	.000
Number of obs = 2226				
Wald chi2(8) = 186.15				
Prob > chi2 = 0.0000				
Pseudo R2 = 0.1242				
Log pseudo likelihood = -693.87635				

Table 4: Internet Use at the Public Library (Logistic Regression)

Independent Variables	**Coef.**	**Robust Std. Err.**	**z**	**P>|z|**
Use internet at home	1.143	.125	9.14	.000
Awareness of public internet facility in neighborhood	.187	.055	3.37	.001
Ease of access to public internet facility in neighborhood	.608	.141	4.31	.000
Age	-.037	.003	-13.15	.000
Latino	.318	.138	2.30	.021
Black	.563	.111	5.06	.000
Asian	.077	.281	0.28	.783
Income	-.108	.025	-4.39	.000
Education	.176	.034	5.17	.000
Parent	.104	.096	1.08	.281
Female	-.021	.090	-0.23	.818
Constant	-1.480	.302	-4.91	.000
Number of obs = 2815				
Wald chi2(11) = 440.46				
Prob > chi2 = 0.0000				
Pseudo R2 = 0.1424				
Log pseudo likelihood = -1582.1751				

Table 5: Reasons for Not Using Internet at Home (Logistic Regression)

Independent Variables	I am Not Interested			The Cost Is Too High		
	Coef.	Robust Std. Err.	P>|z|	Coef.	Robust Std. Err.	P>|z|
Age	.029	.004	.000	.005	.004	.263
Latino	-.079	.225	.725	.647	.225	.004
Black	-.280	.161	.082	.104	.166	.529
Asian	.784	.746	.293	-.879	.815	.281
Income	.120	.041	.004	-.256	.043	.000
Female	-.158	.145	.275	.607	.146	.000
Education	-.115	.045	.012	-.084	.047	.073
Parent	-.168	.196	.392	-.176	.197	.370
Constant	-1.45	.391	.000	.405	.371	.275
	Number of obs = 1011			Number of obs = 1011		
	Wald chi2(8) = 90.17			Wald chi2(8) = 103.14		
	Prob > chi2 = 0.0000			Prob > chi2 = 0.0000		
	Pseudo R2 = 0.0763			Pseudo R2 = 0.0876		
	Log pseudo likelihood = -645.9321			Log pseudo likelihood = -637.9946		

Table 5 continued: Reasons for Not Using Internet at Home (Logistic Regression)

Independent Variables	I can Use It Somewhere Else			I Don't Have Time to Use the Internet		
	Coef.	Robust Std. Err.	P>|z|	Robust Std. Err.	Robust Std. Err.	P>|z|
Age	-.032	.004	.000	-.005	.005	.273
Latino	.156	.220	.478	.703	.241	.004
Black	.184	.165	.264	-.402	.201	.046
Asian	-.357	.657	.587	.503	.689	.465
Income	-.025	.041	.541	.076	.044	.082
Female	.067	.142	.639	-.522	.161	.001
Education	.142	.047	.002	-.073	.053	.167
Parent	-.314	.192	.101	-.124	.219	.573
Constant	1.35	.377	.000	-.575	.422	.173
	Number of obs = 1011			Number of obs = 1010		
	Wald chi2(8) = 74.28			Wald chi2(8) = 54.60		
	Prob > chi2 = 0.0000			Prob > chi2 = 0.0000		
	Pseudo R2 = 0.0596			Pseudo R2 = 0.0540		
	Log pseudo likelihood = -658.65633			Log pseudo likelihood = -514.93941		

Table 5 continued: Reasons for Not Using Internet at Home (Logistic Regression)

Independent Variables	It's Too Difficult to Use			I am Worried About Privacy		
	Coef.	Robust Std. Err.	P>|z|	Coef.	Robust Std. Err.	P>|z|
Age	.037	.005	.000	.004	.004	.312
Latino	.573	.228	.012	1.15	.233	.000
Black	-.273	.169	.107	.034	.163	.835
Asian	-.412	.648	.525	-.339	.618	.584
Income	-.087	.041	.033	.019	.040	.628
Female	.250	.147	.089	.592	.143	.000
Education	-.201	.047	.000	-.063	.046	.164
Parent	.260	.191	.173	.064	.191	.739
Constant	-1.62	.382	.000	-.379	.377	.315
	Number of obs = 1011			Number of obs = 1010		
	Wald chi2(8) = 103.36			Wald chi2(8) = 68.29		
	Prob > chi2 = 0.0000			Prob > chi2 = 0.0000		
	Pseudo R2 = 0.0930			Pseudo R2 = 0.0515		
	Log pseudo likelihood = -627.89249			Log pseudo likelihood = -651.02475		

APPENDIX B. MULTILEVEL MODELS

Table 1: Probability of Internet Use in Any Place: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.078	0.000	-0.077	0.000
	(0.004)		(0.004)	
Latino	-0.964	0.000	-1.041	0.000
	(0.201)		(0.211)	
Black	-0.099	0.630	-0.281	0.112
	(0.205)		(0.177)	
Asian	0.374	0.426	0.335	0.438
	(0.470)		(0.431)	
Income	0.359	0.000	0.366	0.000
	(0.032)		(0.034)	
Education	0.470	0.000	0.464	0.000
	(0.038)		(0.042)	
Parent	0.118	0.425	0.112	0.435
	(0.147)		(0.143)	
Female	-0.117	0.294	-0.115	0.309
	(0.111)		(0.113)	
Geographic Level Variables				
Pct. Latino	-0.010	0.039	-0.006	0.348
	(0.005)		(0.006)	
Pct. Black	-0.009	0.007	-0.009	0.013
	(0.003)		(0.004)	
Pct. Asian	-0.001	0.911	-0.011	0.267
	(0.010)		(0.010)	
Pct. Below Poverty Line	0.006	0.367	0.023	0.004
	(0.007)		(0.008)	
Pct. High School Graduate	0.002	0.762	0.014	0.158
	(0.007)		(0.010)	
Constant	2.208	0.002	1.024	0.285
	(0.718)		(0.959)	
Observations	3117		3117	
Pseudo R-squared	0.4107		0.4102	
Log-likelihood	-1045.5454		-1046.4632	
Wald Chi2	776.7520		821.2099	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 2: Probability of Home Internet Access: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.051	0.000	-0.051	0.000
	(0.003)		(0.003)	
Latino	-0.276	0.117	-0.327	0.067
	(0.176)		(0.178)	
Black	-0.333	0.082	-0.482	0.001
	(0.192)		(0.151)	
Asian	0.410	0.327	0.417	0.155
	(0.419)		(0.293)	
Income	0.373	0.000	0.378	0.000
	(0.028)		(0.026)	
Education	0.364	0.000	0.365	0.000
	(0.036)		(0.033)	
Parent	0.284	0.025	0.273	0.052
	(0.126)		(0.140)	
Female	-0.011	0.915	-0.011	0.907
	(0.099)		(0.096)	
Geographic Level Variables				
Pct. Latino	-0.007	0.031	-0.009	0.003
	(0.003)		(0.003)	
Pct. Black	-0.003	0.221	-0.005	0.083
	(0.003)		(0.003)	
Pct. Asian	0.015	0.099	0.003	0.657
	(0.009)		(0.007)	
Pct. Below Poverty Line	-0.002	0.708	0.009	0.132
	(0.005)		(0.006)	
Constant	0.474	0.112	0.445	0.180
	(0.298)		(0.332)	
Observations	3117		3117	
Pseudo R-squared	0.3318		0.3308	
Log-likelihood	-1298.6818		-1300.7910	
Wald Chi2	780.9496		827.6910	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 3: Probability of Internet Use at the Public Library: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Ease of Access (self reported)	0.303	0.000	0.298	0.000
	(0.055)		(0.050)	
Age	-0.044	0.000	-0.044	0.000
	(0.003)		(0.003)	
Latino	0.278	0.064	0.212	0.144
	(0.150)		(0.146)	
Black	0.647	0.000	0.677	0.000
	(0.163)		(0.142)	
Asian	0.153	0.584	0.179	0.467
	(0.280)		(0.246)	
Income	-0.053	0.027	-0.055	0.038
	(0.024)		(0.026)	
Education	0.259	0.000	0.258	0.000
	(0.032)		(0.033)	
Parent	0.136	0.160	0.127	0.167
	(0.097)		(0.092)	
Female	0.030	0.730	0.024	0.781
	(0.087)		(0.088)	
Geographic Level Variables				
Pct. Latino	-0.017	0.000	-0.016	0.004
	(0.004)		(0.006)	
Pct. Black	-0.007	0.006	-0.007	0.031
	(0.003)		(0.003)	
Pct. Asian	0.002	0.748	0.003	0.621
	(0.006)		(0.006)	
Pct. Below Poverty Line	-0.011	0.033	-0.020	0.023
	(0.005)		(0.009)	
Pct. High School Graduate	-0.027	0.000	-0.029	0.001
	(0.007)		(0.009)	
Constant	1.899	0.006	2.178	0.007
	(0.684)		(0.809)	
Observations	2794		2794	
Pseudo R-squared	0.1251		0.1233	
Log-likelihood	-1596.4057		-1599.5373	
Wald Chi2	359.2470		412.7878	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 4: Probability of Internet Use at a CTC: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Ease of Use (self reported)	0.316	0.009	0.290	0.002
	(0.121)		(0.095)	
Age	-0.031	0.000	-0.031	0.000
	(0.005)		(0.005)	
Latino	0.179	0.598	0.309	0.410
	(0.340)		(0.376)	
Black	0.145	0.646	0.513	0.031
	(0.316)		(0.238)	
Asian	0.195	0.732	0.659	0.213
	(0.569)		(0.530)	
Income	0.012	0.788	0.007	0.874
	(0.045)		(0.046)	
Education	0.117	0.065	0.094	0.201
	(0.063)		(0.074)	
Parent	0.414	0.049	0.427	0.011
	(0.210)		(0.167)	
Female	0.069	0.722	0.045	0.811
	(0.194)		(0.190)	
Geographic Level Variables				
Pct. Latino	0.015	0.265	0.007	0.716
	(0.013)		(0.018)	
Pct. Black	0.009	0.394	-0.001	0.961
	(0.011)		(0.011)	
Pct. Asian	0.009	0.744	-0.002	0.940
	(0.028)		(0.028)	
Pct. Below Poverty Line	0.015	0.074	0.010	0.462
	(0.009)		(0.014)	
Pct. High School Graduate	0.008	0.582	0.009	0.659
	(0.014)		(0.020)	
Constant	-3.981	0.024	-3.086	0.189
	(1.765)		(2.351)	
Observations	886		1102	
Pseudo R-squared	0.0747		0.0680	
Log-likelihood	-400.8104		-493.4263	
Wald Chi2	64.9925		232.4717	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval. Subsample of respondents from census tracts with above average poverty levels.

Table 5: Probability of High Speed (Broadband) versus Dial-up Access: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.034	0.000	-0.034	0.000
	(0.005)		(0.005)	
Latino	-0.481	0.021	-0.498	0.021
	(0.208)		(0.215)	
Black	-0.021	0.936	-0.136	0.627
	(0.258)		(0.279)	
Asian	1.371	0.077	1.327	0.088
	(0.775)		(0.778)	
Income	0.234	0.000	0.244	0.000
	(0.037)		(0.036)	
Education	0.207	0.000	0.202	0.000
	(0.051)		(0.053)	
Parent	-0.232	0.171	-0.239	0.165
	(0.169)		(0.172)	
Female	-0.142	0.335	-0.140	0.283
	(0.147)		(0.130)	
Geographic Level Variables				
Pct. Latino	0.002	0.723	0.001	0.932
	(0.006)		(0.008)	
Pct. Black	0.003	0.465	0.001	0.894
	(0.004)		(0.005)	
Pct. Asian	-0.008	0.432	-0.014	0.197
	(0.010)		(0.011)	
Pct. Below Poverty Line	-0.009	0.356	0.011	0.453
	(0.010)		(0.015)	
Pct. High School Graduate	0.007	0.472	0.011	0.001
	(0.010)		0.001	
Constant	1.236	0.202	0.726	0.594
	(0.968)		(1.363)	
Observations	2113		2113	
Pseudo R-squared	0.1270		0.1262	
Log-likelihood	-652.9279		-653.4911	
Wald Chi2	190.0820		246.7003	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 6: Probability of Citing Cost as a Reason for No Home Internet Access: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	0.006	0.143	0.005	0.313
	(0.004)		(0.005)	
Latino	0.310	0.212	0.509	0.009
	(0.248)		(0.196)	
Black	-0.020	0.946	0.052	0.804
	(0.299)		(0.210)	
Asian	-0.951	0.215	-0.906	0.228
	(0.767)		(0.752)	
Income	-0.253	0.000	-0.253	0.000
	(0.047)		(0.046)	
Education	-0.091	0.065	-0.099	0.029
	(0.049)		(0.046)	
Parent	-0.181	0.387	-0.199	0.309
	(0.209)		(0.196)	
Female	0.585	0.000	0.587	0.000
	(0.147)		(0.126)	
Geographic Level Variables				
Pct. Latino	0.020	0.002	0.020	0.007
	(0.006)		(0.007)	
Pct. Black	0.008	0.084	0.010	0.013
	(0.004)		(0.004)	
Pct. Asian	0.011	0.371	0.018	0.038
	(0.013)		(0.009)	
Pct. Below Poverty Line	0.006	0.382	-0.008	0.473
	(0.007)		(0.011)	
Pct. High School Graduate	0.019	0.047	0.020	0.114
	(0.010)		(0.013)	
Constant	-1.807	0.076	-1.737	0.172
	(1.018)		(1.273)	
Observations	984		984	
Pseudo R-squared	0.0959		0.0924	
Log-likelihood	-615.4857		-617.8867	
Wald Chi2	100.6470		101.4212	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 7: Probability of Citing Too Difficulty as a Reason for No Home Internet Access: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	0.038	0.000	0.038	0.000
	(0.005)		(0.005)	
Latino	0.603	0.022	0.586	0.051
	(0.264)		(0.300)	
Black	-0.231	0.435	-0.303	0.248
	(0.296)		(0.262)	
Asian	-0.352	0.557	-0.326	0.610
	(0.598)		(0.638)	
Income	-0.094	0.027	-0.096	0.021
	(0.043)		(0.042)	
Education	-0.203	0.000	-0.210	0.000
	(0.049)		(0.049)	
Parent	0.256	0.197	0.259	0.210
	(0.198)		(0.207)	
Female	0.229	0.144	0.218	0.185
	(0.157)		(0.165)	
Geographic Level Variables				
Pct. Latino	0.003	0.659	0.012	0.107
	(0.006)		(0.007)	
Pct. Black	0.005	0.189	0.010	0.036
	(0.004)		(0.005)	
Pct. Asian	0.007	0.569	0.010	0.388
	(0.013)		(0.011)	
Pct. Below Poverty Line	-0.025	0.001	-0.027	0.009
	(0.008)		(0.010)	
Pct. High School Graduate	-0.007	0.477	0.008	0.538
	(0.009)		(0.013)	
Constant	-1.034	0.273	-2.408	0.045
	(0.943)		(1.198)	
Observations	984		984	
Pseudo R-squared	0.1043		0.1039	
Log-likelihood	-602.4645		-602.7304	
Wald Chi2	120.5170		125.6407	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 8: Probability of Citing a Lack of Interest as a Reason for No Internet Access: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	0.028	0.000	0.029	0.000
	(0.005)		(0.005)	
Latino	-0.084	0.727	-0.127	0.603
	(0.240)		(0.243)	
Black	0.176	0.512	-0.021	0.926
	(0.269)		(0.229)	
Asian	0.828	0.288	0.824	0.298
	(0.780)		(0.791)	
Income	0.110	0.015	0.119	0.008
	(0.045)		(0.045)	
Education	-0.123	0.010	-0.130	0.010
	(0.048)		(0.050)	
Parent	-0.190	0.326	-0.216	0.257
	(0.193)		(0.191)	
Female	-0.154	0.311	-0.138	0.358
	(0.152)		(0.150)	
Geographic Level Variables				
Pct. Latino	0.003	0.538	0.009	0.189
	(0.004)		(0.007)	
Pct. Black	-0.003	0.500	0.004	0.453
	(0.004)		(0.005)	
Pct. Asian	0.010	0.465	0.020	0.166
	(0.014)		(0.014)	
Median Income	0.000	0.099	0.000	0.033
	(0.000)		(0.000)	
Constant	-1.962	0.000	-2.728	0.000
	(0.540)		(0.749)	
Observations	984		984	
Pseudo R-squared	0.0812		0.0816	
Log-likelihood	-625.1008		-624.8473	
Wald Chi2	90.5790		86.2566	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 9: Probability of Internet Use at Work: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.013	0.008	-0.013	0.002
	(0.005)		(0.004)	
Latino	-0.833	0.000	-0.754	0.000
	(0.190)		(0.192)	
Black	-0.495	0.042	-0.521	0.033
	(0.243)		(0.245)	
Asian	-0.443	0.176	-0.413	0.292
	(0.327)		(0.392)	
Income	0.226	0.000	0.225	0.000
	(0.036)		(0.032)	
Education	0.499	0.000	0.494	0.000
	(0.050)		(0.052)	
Parent	-0.070	0.615	-0.047	0.703
	(0.139)		(0.124)	
Female	-0.035	0.775	-0.049	0.626
	(0.124)		(0.101)	
Geographic Level Variables				
Pct. Latino	0.025	0.000	0.030	0.000
	(0.006)		(0.007)	
Pct. Black	0.009	0.014	0.010	0.022
	(0.004)		(0.004)	
Pct. Asian	0.001	0.924	-0.003	0.829
	(0.008)		(0.013)	
Pct. Below Poverty Line	0.006	0.435	0.013	0.187
	(0.007)		(0.010)	
Pct. High School Graduate	0.030	0.001	0.041	0.000
	(0.009)		(0.011)	
Constant	-5.513	0.000	-6.596	0.000
	(0.905)		(1.115)	
Observations	1546		1546	
Pseudo R-squared	0.2332		0.2323	
Log-likelihood	-784.3304		-785.3172	
Wald Chi2	328.0555		293.6138	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval. Subsample of employed respondents (full or part-time) only.

Table 10: Probability of Internet Use for Health Information: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.048	0.000	-0.048	0.000
	(0.003)		(0.003)	
Latino	-0.529	0.001	-0.566	0.000
	(0.159)		(0.155)	
Black	-0.038	0.828	-0.121	0.471
	(0.174)		(0.168)	
Asian	0.203	0.509	0.200	0.444
	(0.308)		(0.261)	
Income	0.304	0.000	0.308	0.000
	(0.026)		(0.031)	
Education	0.366	0.000	0.362	0.000
	(0.032)		(0.030)	
Parent	0.250	0.033	0.244	0.028
	(0.117)		(0.111)	
Female	0.283	0.002	0.283	0.004
	(0.091)		(0.098)	
Geographic Level Variables				
Pct. Latino	-0.007	0.095	-0.006	0.170
	(0.004)		(0.004)	
Pct. Black	-0.005	0.059	-0.007	0.011
	(0.003)		(0.003)	
Pct. Asian	0.014	0.083	0.006	0.277
	(0.008)		(0.006)	
Pct. Below Poverty Line	0.005	0.398	0.018	0.003
	(0.006)		(0.006)	
Pct. High School Graduate	0.002	0.719	0.008	0.285
	(0.006)		(0.008)	
Constant	-0.139	0.830	-0.761	0.324
	(0.649)		(0.772)	
Observations	3116		3116	
Pseudo R-squared	0.2923		0.2922	
Log-likelihood	-1438.2169		-1438.3387	
Wald Chi2	742.3475		935.8000	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 11: Probability of Online Job Search: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.078	0.000	-0.078	0.000
	(0.003)		(0.003)	
Latino	-0.286	0.078	-0.329	0.045
	(0.162)		(0.164)	
Black	0.473	0.003	0.381	0.029
	(0.161)		(0.174)	
Asian	0.329	0.203	0.335	0.123
	(0.258)		(0.217)	
Income	0.054	0.020	0.057	0.040
	(0.023)		(0.028)	
Education	0.314	0.000	0.319	0.000
	(0.032)		(0.032)	
Parent	0.015	0.891	0.011	0.937
	(0.109)		(0.134)	
Female	0.011	0.905	0.008	0.936
	(0.095)		(0.096)	
Geographic Level Variables				
Pct. Latino	-0.006	0.173	-0.008	0.191
	(0.004)		(0.006)	
Pct. Black	-0.002	0.338	-0.003	0.358
	(0.003)		(0.003)	
Pct. Asian	0.001	0.907	-0.004	0.699
	(0.009)		(0.011)	
Pct. Below Poverty Line	0.001	0.906	0.001	0.939
	(0.005)		(0.007)	
Pct. High School Graduate	-0.004	0.587	-0.010	0.336
	(0.007)		(0.010)	
Constant	2.313	0.001	2.844	0.005
	(0.675)		(1.019)	
Observations	3115		3115	
Pseudo R-squared	0.2715		0.2715	
Log-likelihood	-1572.6548		-1572.6726	
Wald Chi2	889.7194		738.0208	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 12: Probability of Internet Use for Classes or Training: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.034	0.000	-0.034	0.000
	(0.003)		(0.003)	
Latino	-0.147	0.324	-0.158	0.249
	(0.149)		(0.137)	
Black	0.049	0.739	0.009	0.950
	(0.146)		(0.149)	
Asian	0.214	0.384	0.210	0.398
	(0.246)		(0.249)	
Income	0.106	0.000	0.106	0.000
	(0.023)		(0.024)	
Education	0.361	0.000	0.362	0.000
	(0.036)		(0.037)	
Parent	0.060	0.546	0.060	0.592
	(0.100)		(0.111)	
Female	-0.005	0.957	-0.010	0.909
	(0.090)		(0.088)	
Individual Level Variables				
Pct. Latino	-0.001	0.746	-0.003	0.603
	(0.004)		(0.005)	
Pct. Black	-0.000	0.886	-0.000	0.996
	(0.003)		(0.003)	
Pct. Asian	0.003	0.671	0.002	0.768
	(0.006)		(0.007)	
Pct. Below Poverty Line	0.003	0.525	0.002	0.797
	(0.005)		(0.008)	
Pct. High School Graduate	-0.005	0.463	-0.009	0.332
	(0.007)		(0.009)	
Constant	-1.285	0.054	-0.956	0.264
	(0.666)		(0.856)	
Observations	3115		3115	
Pseudo R-squared	0.1322		0.1323	
Log-likelihood	-1662.6053		-1662.4013	
Wald Chi2	431.8355		510.0489	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 13: Probability of Internet Use for Public Transportation Information: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.053	0.000	-0.052	0.000
	(0.003)		(0.003)	
Latino	-0.783	0.000	-0.840	0.000
	(0.155)		(0.137)	
Black	-0.319	0.064	-0.342	0.028
	(0.172)		(0.156)	
Asian	0.128	0.687	0.089	0.748
	(0.318)		(0.278)	
Income	0.169	0.000	0.176	0.000
	(0.023)		(0.023)	
Education	0.263	0.000	0.263	0.000
	(0.030)		(0.027)	
Parent	0.119	0.257	0.116	0.260
	(0.105)		(0.103)	
Female	0.040	0.633	0.047	0.581
	(0.085)		(0.085)	
Geographic Level Variables				
Pct. Latino	-0.005	0.154	-0.004	0.354
	(0.004)		(0.004)	
Pct. Black	-0.005	0.051	-0.007	0.006
	(0.002)		(0.003)	
Pct. Asian	-0.003	0.683	-0.008	0.124
	(0.007)		(0.005)	
Pct. Below Poverty Line	0.011	0.045	0.026	0.000
	(0.005)		(0.007)	
Pct. High School Graduate	0.010	0.071	0.015	0.097
	(0.006)		(0.009)	
Constant	0.261	0.645	-0.298	0.691
	(0.568)		(0.751)	
Observations	3115		3115	
Pseudo R-squared	0.2289		0.2292	
Log-likelihood	-1652.4466		-1651.7189	
Wald Chi2	680.1880		775.0732	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 13: Probability of Internet Use for Information about Politics: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.043	0.000	-0.042	0.000
	(0.003)		(0.003)	
Latino	-0.585	0.000	-0.538	0.000
	(0.151)		(0.142)	
Black	-0.411	0.011	-0.388	0.018
	(0.163)		(0.164)	
Asian	0.067	0.798	0.020	0.934
	(0.263)		(0.240)	
Income	0.238	0.000	0.240	0.000
	(0.025)		(0.029)	
Education	0.394	0.000	0.381	0.000
	(0.033)		(0.032)	
Parent	-0.298	0.007	-0.282	0.004
	(0.110)		(0.098)	
Female	-0.166	0.059	-0.157	0.066
	(0.088)		(0.085)	
Geographic Level Variables				
Pct. Latino	0.007	0.059	0.013	0.021
	(0.004)		(0.006)	
Pct. Black	0.003	0.238	0.003	0.397
	(0.002)		(0.003)	
Pct. Asian	0.004	0.615	0.007	0.341
	(0.007)		(0.008)	
Pct. Below Poverty Line	0.006	0.252	0.024	0.007
	(0.006)		(0.009)	
Pct. High School Graduate	0.018	0.004	0.036	0.000
	(0.006)		(0.010)	
Constant	-2.155	0.000	-3.879	0.000
	(0.618)		(0.892)	
Observations	3115		3115	
Pseudo R-squared	0.2609		0.2640	
Log-likelihood	-1592.5272		-1585.8280	
Wald Chi2	832.9049		783.1396	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 14: Probability of Internet Use for Information about Government: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.038	0.000	-0.037	0.000
	(0.003)		(0.003)	
Latino	-0.554	0.000	-0.550	0.000
	(0.143)		(0.142)	
Black	-0.267	0.110	-0.215	0.163
	(0.167)		(0.154)	
Asian	-0.035	0.896	0.018	0.936
	(0.270)		(0.219)	
Income	0.209	0.000	0.211	0.000
	(0.023)		(0.028)	
Education	0.367	0.000	0.368	0.000
	(0.031)		(0.029)	
Parent	0.150	0.162	0.148	0.199
	(0.107)		(0.115)	
Female	-0.116	0.183	-0.115	0.122
	(0.087)		(0.074)	
Geographic Level Variables				
Pct. Latino	0.005	0.187	0.005	0.388
	(0.004)		(0.006)	
Pct. Black	0.006	0.026	0.003	0.277
	(0.003)		(0.003)	
Pct. Asian	0.017	0.017	0.009	0.147
	(0.007)		(0.006)	
Pct. Below Poverty Line	-0.002	0.681	0.007	0.302
	(0.005)		(0.007)	
Pct. High School Graduate	0.009	0.122	0.012	0.147
	(0.006)		(0.009)	
Constant	-1.418	0.016	-1.751	0.039
	(0.586)		(0.849)	
Observations	3116		3116	
Pseudo R-squared	0.2250		0.2239	
Log-likelihood	-1653.2776		-1655.7325	
Wald Chi2	704.9155		740.5732	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

Table 15: Probability of Using the City of Chicago's Website: Multilevel Logistic Regression Estimates, Clustering by Census Tract or Chicago Community Area

	Model 1: Census Tract		Model 2: Community Area	
	Coef. (S.E.)	p>|z|	Coef. (S.E.)	p>|z|
Individual Level Variables				
Age	-0.027	0.000	-0.027	0.000
	(0.002)		(0.003)	
Latino	-0.167	0.226	-0.196	0.138
	(0.138)		(0.132)	
Black	-0.080	0.628	-0.059	0.670
	(0.166)		(0.138)	
Asian	-0.202	0.426	-0.169	0.500
	(0.254)		(0.250)	
Income	0.208	0.000	0.209	0.000
	(0.024)		(0.025)	
Education	0.314	0.000	0.321	0.000
	(0.030)		(0.031)	
Parent	0.311	0.002	0.305	0.001
	(0.102)		(0.092)	
Female	0.184	0.031	0.176	0.035
	(0.085)		(0.084)	
Geographic Level Variables				
Pct. Latino	-0.002	0.649	-0.004	0.351
	(0.003)		(0.005)	
Pct. Black	0.002	0.513	-0.000	0.968
	(0.002)		(0.002)	
Pct. Asian	0.008	0.230	0.003	0.559
	(0.006)		(0.005)	
Pct. Below Poverty Line	-0.002	0.595	-0.003	0.648
	(0.004)		(0.006)	
Pct. High School Graduate	-0.008	0.119	-0.016	0.049
	(0.005)		(0.008)	
Constant	-0.827	0.123	-0.203	0.797
	(0.536)		(0.788)	
Observations	3112		3112	
Pseudo R-squared	0.1573		0.1578	
Log-likelihood	-1816.7383		-1815.7021	
Wald Chi2	541.2771		634.1826	
Prob. > chi2	0.0000		0.0000	

Unstandardized logistic regression coefficients with robust standard errors in parentheses. Standard errors adjusted by clustering cases by geographic area (census tract or Chicago community area). Probabilities based on two-tailed significance tests. Variables with a p-value of .10 or lower are considered statistically significant with a 90% confidence interval; a p-value of .05 or lower is considered statistically significant with a 95% confidence interval.

APPENDIX C

UNIVERSITY OF IOWA HAWKEYE POLL
DEPARTMENT OF POLITICAL SCIENCE
CHICAGO INTERNET SURVEY CONDUCTED JUNE 23-AUGUST 7, 2008
QUESTIONNAIRE

INTRODUCTION:

Hello, I am _____, calling from the University of Iowa. We are studying the role of the internet in Chicago. Your phone number was selected at random to represent your neighborhood in this study. I am not selling anything and just need a few minutes.

ATTEMPT TO IMPROVE YOUNG MALE RESPONSE RATES

YNGMALE:
I'd like to ask some questions of the youngest male who is 18 years or older and now at home. [IF R IS MALE] Would that be you?

IF RESP: YES → CONTINUE WITH [**AGESCREEN**]
IF RESP: LET ME GET HIM →WAIT FOR NEW PERSON, GO TO [**REINTRO**]
IF RESP: NO MALE, ASK:

Is there another person over 18 I can speak with? Could I speak with you?

IF CURRENT R. → GO TO [**AGESCREEN**]
IF WILL GET SOMEONE, → WAIT FOR NEW PERSON, GO TO [**REINTRO**]
IF NO, GO TO [**SCHEDULE**].

REINTRO:
Hello, I am _____, calling from the University of Iowa. We are studying the role of the internet in Chicago. Your phone number was selected at random to represent your neighborhood in this study. I am not selling anything and just need a few minutes.

AGESCREEN:
SCREEN AGE FOR 18 and OVER

Q1A
AGE First, I need to make sure we are reaching people of all ages 18 or over. Would you tell me your age?

_____ years
97 97 or older
99 Don't know/Refused **[VOL.]**

IF NOT 18 or OVER→ GO TO END [INELIGIBLE]

CONSENT:

We invite you to participate in a study about technology access in Chicago being conducted by researchers from the University of Iowa. Your phone number was chosen at random to represent your neighborhood. If you agree, we would like to ask you a series of questions. You may skip any questions that you prefer not to answer. This will take about 12 minutes.

Your responses are confidential and it will not be possible to link you to them. This survey is voluntary. Your willingness to answer my questions will indicate your consent to use your answers in our research project.

Q1B
Are you willing to participate in this survey?

0 NO → **GO TO END [ATTEMPT CONVERT]**
1 YES

Q2
INTUSE OK, thanks! First, do you ever use the Internet in any place (home, work, school, anywhere else)?

0 No
1 Yes

8 Don't Know
9 Refused

Q3
INFO We are interested in the information people feel they need in their daily lives whether or not it comes from the internet. Would you say that it is very important, important, not very important, or not important at all for you to get information on: [PROMPT WITH RESPONSE OPTIONS AS NEEDED]

Q3A Jobs or better job opportunities
Q3B Education or training for myself
Q3C My child's school
Q3D Health care or health issues
Q3E My neighborhood
Q3F Government or services provided by government
Q3G Places to live

RESPONSE OPTIONS

1 Very important
2 Important
3 Not very important
4 Not at all important

8 Don't Know
9 Refused

IF Q2 IS NOT YES (1) GO TO Q6

Q4
FREQUSE About how often do you use the Internet? [Read options]

1 Several times a day
2 About once a day
3 3-5 days a week
4 1-2 days a week
5 Every few weeks
6 Less often

9 Refused

Q5
HOWLONG About how many years have you been an Internet user? [ENTER YEARS]

_____ years

8 Don't Know
9 Refused

Q6
HCOMP Do you have a computer at home?

0 NO → **GO TO Q8**
1 YES

8 Don't Know→ **GO TO Q8**
9 Refused → **GO TO Q8**

Q7
INETHOM Do you ever use the Internet at home?

0 NO
1 YES→ **GO TO Q10**

8 Don't Know
9 Refused

Q8
NOACCESS I am going to read a list of reasons why some people don't use the Internet at home. For each, just tell me whether it applies to you by saying yes if it does, or no if it does not.

Q8A I don't need it, I'm not interested
Q8B The cost is too high for me
Q8C I can use it somewhere else
Q8D I don't have time to use the Internet
Q8E It's too difficult to use
Q8F I am worried about privacy and personal information online
Q8G The Internet is dangerous
Q8H It's hard for me to use the information in English
Q8I I have a physical impairment that makes it difficult to use the Internet

RESPONSE OPTIONS

0 NO
1 YES

8 Don't Know
9 Refused

Q9
MAIN Now, please tell me in a couple words the MAIN reason you don't use the Internet at home? [DON'T READ, CODE ANSWER TO BEST FIT]

1 I don't need it, I'm not interested
2 The cost is too high for me
3 I can use it somewhere else
4 I don't have time to use the Internet
5 It's too difficult to use
6 I am worried about privacy and personal information online
7 The Internet is dangerous
8 It's hard for me to use the information in English
9 I have a physical impairment that makes it difficult to use the Internet
10 Other

11 Don't Know
12 Refused

Q9A
INTFUT Is there anything that might make you interested in using the internet in the future? If so, just tell me in a couple words what it is. If not, just tell me no. [OPEN ENDED, RECORD VERBATIM]

IF Q7 IS NOT 1 GO TO Q14

Q10
HCONTYP Does the computer you use at HOME connect to the Internet through a dial-up telephone line, or do you have some type of high speed connection,?

1 Dial-up telephone

2 High Speed Connection → **GO TO Q12**

8 Don't Know → **GO TO Q12**
9 Refused → **GO TO Q12**

Q11
NOBBND What is the MAIN reason you do not have high-speed (that is, faster than dial-up) Internet access at home? [DON'T READ, CODE ANSWER TO BEST FIT]

1 Don't need it or not interested
2 Costs are too high for me
3 Can use it somewhere else
4 I don't have time to use the Internet
5 Too difficult to use or don't now how to use
6 No computer or computer inadequate
7 Privacy and security
8 Not available in area
9 Other

10 Don't Know
11 Refused

Q12
WHEREINT Where would you say that you use the Internet **most often**? [DON'T READ, CODE ANSWER TO BEST FIT]

1 Home
2 Work
3 School
4 A library or public place
5 Friend or relative's house
6 Coffee Shop or Internet Cafe
7 Other

8 Don't Know (Vol.)
9 Refused (Vol.)

Q13
WHERESEC Where would you say that you use the Internet **most often after that**? [DON'T READ, CODE ANSWER TO BEST FIT]

1 Home
2 Work
3 School
4 A library or public place
5 Friend or relative's house

6 Coffee Shop or Internet Cafe
7 Other

8 Don't Know (Vol.)
9 Refused (Vol.)

Q14
CTCAWAR As far as you know, is there a place you can go in your neighborhood where the Internet is publicly available to anyone who wants to use it? Such places are often called Community Technology Centers.

0 NO
1 YES

8 Don't Know (Vol.)
9 Refused (Vol.)

IF Q2 IS NOT YES (1) SKIP TO Q16

Q15
CTCHELP Have you ever used the Internet or gotten help using the Internet at a Community Technology Center?

0 NO
1 YES

8 Don't Know (Vol.)
9 Refused (Vol.)

Q16
PUBLICACC Would you say that it is easy or difficult to get to places in your community with public access to the Internet, like a library or a community technology center? Would you say that it is very easy, somewhat easy, somewhat difficult or very difficult?

1 Very easy
2 Somewhat easy
3 Somewhat difficult
4 Very difficult

8 Don't know (Vol)
9 Refused (Vol)

IF Q2 IS NOT YES (1) SKIP TO Q24

Q17
LIBRARY Have you used the Internet at the Chicago Public Library?

0 NO
1 YES

8 Don't Know (Vol.)
9 Refused (Vol.)

IF Q15 IS NOT YES (1) AND Q17 IS NOT YES (1) GO TO Q19

Q18
WHYLIB I am going to read a number of statements about why you use the Internet at the library or at a community technology center. Please respond yes or no to each statement.

Q18A I don't have a computer at home or my computer it slow
Q18B I don't have an Internet connection at home
Q18C I needed help to find information
Q18D I needed help to use the computer
Q18E My computer or Internet connections at home aren't working
Q18F It is convenient
Q18G To take a class
Q18H To take my children to do their homework

RESPONSE OPTIONS

0 NO
1 YES

8 Don't Know (Vol.)
9 Refused (Vol.)

Q19
ACTIVITIES I am going to read a list of things you might do on the internet. Please tell me how frequently you do each by saying if you do these things daily, a few times per week, a few times per month, rarely, or never. [PROMPT WITH OPTIONS AS NEEDED]

Q19A Get news online
Q19B Do work for your job
Q19C Use a social networking site like Facebook
Q19D Send or receive email
Q19E Use a cell phone to connect to the Internet
Q19F Read a blog
Q19G Use wireless access to connect to the Internet in a public place

RESPONSE OPTIONS

1 Daily
2 A few times per week
3 A few times per month
4 Rarely
5 Never

8 Don't Know (Vol.)
9 Refused (Vol.)

Q20
ONLINE I'm going to read another list. For each item please tell me if you ever use the Internet to do any of the following things by just saying yes or no. Do you ever use the Internet to; [PROMPT AS NECESSARY – JUST TELL ME YES OR NO]

Q20A Find health information
Q20B Look for a job or information on jobs
Q20C Take a class or training online
Q20D Get information about politics
Q20E Get information about trains or buses using the CTA or RTA website
Q20F Find information on government
Q20G Use the City of Chicago website

RESPONSE OPTIONS

0 NO
1 YES

8 Don't Know (Vol.)
9 Refused (Vol.)

IF Q20G IS YES(1) ASK Q21 OTHERWISE SKIP TO Q23

Q21
CHICAGO Please tell me if you have ever used the City of Chicago website to do any of the following. Just tell me yes or no. [PROMPT AS NECESSARY – JUST TELL ME YES OR NO]

Q21A Get an address or phone number
Q21B Contact officials
Q21C Get tourist or recreation information
Q21D Get information about services (other than recreation or tourism)
Q21E Complete a transaction online, such as paying a bill or fine, or filing a form online
Q21F Look for government policies or documents

RESPONSE OPTIONS

0 NO
1 YES

8 Don't Know (Vol.)
9 Refused (Vol.)

Q22
EVALCHI I am going to read you some statements about the City of Chicago website. Please tell me whether you strongly agree, agree, disagree or strongly disagree with each statement. [PROMPT AS NECESSARY WITH RESPONSE OPTIONS]

Q22A The website had the information I needed.
Q22B The website was easy to use and find information.
Q22C The website was difficult to use and complex.

RESPONSE OPTIONS

1 Strongly Agree
2 Agree
3 Disagree
4 Strongly Disagree

8 Don't Know (Vol.)
9 Refused (Vol.)

Q23
SKILLS I am going to read some things people sometimes do online. Please tell me if you already know how to do each one, or if you would need someone else to help you.

Q23A Use a search engine to find information online
Q23B Send and receive email
Q23C Download and fill out a form
Q23D Upload images or files to a website or email
Q23E Create a website

RESPONSE OPTIONS

1 Know how
2 Need help

8 Don't Know (Vol.)
9 Refused (Vol.)

Q24

POLICY1 There's been talk about building a wireless network in neighborhoods in Chicago. Which of the following should be the focus in doing this project? Should it be on making wireless available: [RANDOMIZE ORDER OF FIRST THREE OPTIONS; READ IN ORDER]

1 all over the city
2 in low-income neighborhoods
3 in public schools, libraries and other public places

4 or do you think they should not work on this project?

8 Don't Know (Vol.)
9 Refused (Vol.)

Q25
POLICY2 Would you support a project to provide free wireless internet access if it caused a small increase in fees or taxes?

0 NO
1 YES

8 Don't Know (Vol.)
9 Refused (Vol.)

Demographic Information – ALL RESPONDENTS

Now, just a few last questions for statistical purposes only. We're almost done. I appreciate the time you've given me.

Q26
EDUC What is the last grade or class that you completed in school?

[DO NOT READ; MARK CLOSEST]

1 None, or grade 1-8
2 High school incomplete (Grades 9-11)
3 High school graduate (Grade 12 or GED certificate)
4 Technical, trade, or vocational school AFTER high school
5 Some college, no 4-year degree (including associate degree)
6 College graduate (B.S., B.A., or other 4-year degree)
7 Post-graduate training or professional schooling after college (e.g., toward a master's Degree or Ph.D.; law or medical school)
8 Don't know **(Vol.)**
9 Refused **(Vol.)**

Q27
RACE What is your race? Are you white, black, Asian, or some other?

1 White

2 Black
3 Asian
4 Other or mixed race

8 Don't know **(Vol.)**
9 Refused **(Vol.)**

Q28
HISP Are you, yourself, of Hispanic origin or descent, such as Mexican, Puerto Rican, Cuban, or some other Spanish background?

0 NO
1 YES

8 Don't know (Vol)
9 Refused (Vol)

Q29
MARITAL What is your marital status? Are you… [**READ**]

1. Married, or with a committed partner
2 Divorced
3 Separated
4 Widowed
5 Never been married

8 Don't know **(Vol.)**
9 Refused **(Vol.)**

Q31
INCOME Last year, that is in 2007, what was your total family income from all sources, before taxes? Just stop me when I get to the right category. **[READ]**

1 Less than $5,000
1 5 to under $10,000
2 10 to under $20,000
3 20 to under $30,000
4 30 to under $40,000
5 40 to under $50,000
6 50 to under $75,000
7 75 to under $100,000
8 100 to under $150,000
9 $150,000 or more

10 Don't know **(Vol.)**
11 Refused **(Vol.)**

IF Q31 IS REFUSED(11) ASK:

Q31A

INCOME2 Just for statistical purposes it would be really helpful if you would tell me if your family income is above $20,000. Is it: [read options]

1 Above $20,000
2 At or Below $20,000

8 Don't Know
9 Refused

Q32

CHILD Are you the parent or guardian of any children under 18 now living in your household?

0 NO
1 YES

8 Don't know
9 Refused

Q33

JOB What is your employment status? Are you: [**READ**]

1 Employed full time
2 Employed part time
3 A homemaker or stay at home parent
4 Retired
5 A student
6 Unemployed
7 Laid off
8 Disabled

9 Don't know
10 Refused

Q34

ZIPCODE What is your zipcode?

_____ Enter Zipcode

8 Don't know **(Vol.)**
9 Refused **(Vol.)**

Q35

OCCUP What is your occupation? [OPEN ENDED, RECORD VERBATIM]

Q36

CHA Are you currently a CHA [Chicago Housing Authority] resident or are you a former resident who will be returning to CHA housing in the future?

0 NO
1 YES

8 Don't know **(Vol.)**
9 Refused **(Vol.)**

Q37
STREETS What are the cross-streets nearest your residence? [OPEN ENDED, RECORD VERBATIM]

Q38
SEX **[DO NOT ASK; ENTER RESPONDENT'S APPARENT SEX]**

1 Male
2 Female

END OF INTERVIEW. THANK RESPONDENT → GO TO [COMPLETE]

[COMPLETE]

OK, that's all I have for your today. Thank you again for your time. Have a nice day/evening. [END; complete]

[ATTEMPT CONVERT]

I understand why you might not want to take the time right now to talk with us. But what we are doing is important to Chicago and your answers will help the city better understand what kind of technology people need. It will only take about 12 minutes. Could you help us out?

1 YES → RETURN TO Q2
2 NO → GO TO [SCHEDULE]

[SCHEDULE]

Would it be possible to schedule another time to talk with you or someone else in your household? I'd be happy to set up a specific day and time to call.

1 YES
2 NO → OK, thanks for your time. [END; Refusal]

Great, thanks. I am calling you at [read phone number]. When would you like me to call back? [ENTER DAY AND TIME FOR CALLBACK] Could you give me your first name so I know who to ask for when I call? [RECORD FIRST NAME].

Thanks, we'll talk to you soon. [END, Callback scheduled]

[PARTIAL]

I'm sorry this is taking so long right now, and I know you are busy. Could I schedule a time to call you back to finish the survey? We only have a few more minutes to go and your answers are very important to the study since you've been randomly selected to represent your neighborhood. Would it be possible for us to call you back at another time or day to finish this survey?

1 YES
2 NO → OK, thanks for your time. [END; Partial Refusal]

Great, thanks. I am calling you at [read phone number]. When would you like me to call back? [ENTER DAY AND TIME FOR CALLBACK] Could you give me your first name so I know who to ask for when I call? [RECORD FIRST NAME].

Thanks, talk to you soon. [END, Partial Callback]

[INELIGIBLE]

OK, we're only talking to people 18 or over today. Thanks for your time.
[END, ineligible]

OTHER CODES TO RECORD AS NEEDED

OUT OF SAMPLE – Business Line
DISCONNECT – Number not in service
LANGUAGE – Respondent does not speak English or Spanish